




Lockheed Martin Technology Services
Environmental Services REAC
2890 Woodbridge Avenue, Building 209 Annex
Edison, NJ 08837-3679
Telephone 732-321-4200
Facsimile 732-494-4021

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TO: Philip R. Campagna, U.S. EPA/ERT Work Assignment Manager
Rajeshmal Singhvi, U.S. EPA/ERT
Alan Humphrey, U.S. EPA/ERT

FROM: Scott Grossman, REAC Task Leader 

SUBJECT: SOIL AND GEOPHYSICAL SURVEY: ASSESSMENT OF PUBLIC WORKS
(OBRAS PUBLICAS) SITE, GUANICA, PUERTO RICO - WORK ASSIGNMENT #0-
358 – **FINAL REPORT**

PURPOSE

This report presents the results of an environmental investigation conducted at the Public Works site in September 2008 by personnel from the Lockheed Martin Response Engineering and Analytical Contract (REAC) in consultation with the Environmental Protection Agency (EPA) Environmental Response Team (ERT) Work Assignment Manager (WAM). The objectives of the Work Assignment (WA) are to use geophysical methodologies to look for drum-like anomalies and collect soil samples in the areas where the anomalies are detected. Soil samples were submitted to the ERT/REAC Laboratory in Edison, New Jersey (NJ) for target analyte list (TAL) metals and target compound list (TCL) volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs) and pesticides/polychlorinated biphenyls (PCBs) analyses. The project was initiated under REAC WA No. EAC00358.

BACKGROUND

The site consists of a 2-acre vacant lot and is located within a residential area of Guanica (Figure 1). The property is being considered for development as a shopping center. Aerial photography shows at least three buildings were formerly located on the site, but all of these structures have been removed and only the concrete slabs remain. The site has cleared and grassy areas, mounds of debris, and areas that are heavily vegetated with shrubs and trees. A school is adjacent to the site along the western perimeter. A wooded area, municipal building and highway (PR-33) are located along the eastern boundary of the site. The site is bounded to the north by a wooded area and high-rise building and to the south by a road (CII 13 de Marzo) and a residential area.

A preliminary geophysical survey of a portion of the site by ERT/REAC in August 2008 indicated at least one area potentially contains buried metal and some scattered metal was observed on the surface of the site (LM REAC 2008).

ACTIVITIES

Geophysical Survey

A time-domain electromagnetic (TDEM) survey was conducted using a Geonics® EM61 MK2 (EM-61) instrument over as much of the site as possible. Some portions of the site were not accessible due to thick vegetation, debris piles or concrete slab structures. Two distinct survey grids were established on the site, Area 1 to the on the southern portion of the site and Area 2 on the northern portion of the site (Figure 1). The survey grids were set-up using measuring tapes and a right angle prism by running a baseline along the northern boundary of the grid. Survey lines were spaced 3 feet apart. The locations of all corners of the grids were obtained in the field using a differential global positioning system (dGPS).

The EM-61 is a time-domain metal detector that induces a magnetic field in the earth and measures the secondary magnetic field that is created. Measurements are made over different time gates providing better discrimination of the materials based on the decay of their secondary magnetic field. Data collected during the survey were uploaded to a portable computer and processed. The processed data were contoured using Surfer software and then interpreted. After the EM-61 survey was completed, a ground penetrating radar (GPR) system was used to confirm and refine the locations of anomalies identified during the TDEM survey. A GPR survey was conducted in two of the three target areas in Area 2, one of the target areas (Target Area 1) could not be surveyed because of standing water on that portion of the grid (Figure 1 and 3).

Soil Sampling

Soil samples were collected in areas where geophysical anomalies were detected during the EM survey. Target Area 1 and Target Area 2 were targeted for soil sampling (Figure 3). Surface soil samples were collected using a decontaminated stainless steel trowel to a depth of 6 inches below ground surface (bgs). Soil for VOC analyses was collected directly into a glass sample container to minimize VOC losses. After the VOC sample was collected, the remainder of the sample was placed into a dedicated pan and homogenized. Sub-samples of the homogenized soil were placed in glass jars for SVOC, Pesticide/PCBs, and metals analyses.

At all sample locations, an attempt was made to collect a subsurface soil sample to a maximum depth of 3 feet bgs using a decontaminated stainless steel bucket auger. Due to the rocky nature of the soil, it was only possible to collect subsurface samples at Locations 3 and 4 of the seven locations. Soil for VOC analyses was transferred directly from the auger into a glass sample container. The remainder of the soil was transferred to a dedicated pan and homogenized. The homogenized soil was transferred to a sample container for SVOC, Pesticide/PCBs, and metals analyses.

All samples were maintained under custody of the task leader in a cooler on wet ice prior to shipment to the ERT/REAC laboratory. Prior to shipment, labels and chain-of-custody forms were generated using SCRIBE database software.

Soil Gas Sampling

At the same locations (based on the geophysical survey, as described above) the soil samples were collected, the sampling team intended on collecting shallow (to a depth 3 feet bgs) soil gas samples. Due to the heavy rain at the time of sampling event, the water table was close to or above the ground surface and soil gas sampling was not possible.

Sample Handling And Custody

All samples submitted to the ERT/REAC Laboratory for analyses were maintained on the site in a sample cooler on wet ice under the task leader's custody. Prior to shipping the samples, all field data were entered into the SCRIBE database and Chain of Custody (COC) records were generated. The COC records were placed in the sample cooler and shipped via Federal Express. All COC records received a peer review in the field prior to transport in accordance with REAC SOP #4005, *Chain of Custody Procedures*. At least two custody seals were placed across the shipping containers to ensure sample integrity during shipping.

RESULTS AND DISCUSSION

The field investigation was conducted between 23 and 25 September 2008 at the Public Works (Obras Publicas) Site in Guanica, Puerto Rico. Due to heavy rains and standing water throughout much of the site, it was not possible to collect any soil gas samples. The standing water on the site also impacted the GPR survey over Target Area 1. All site activities were photodocumented (Appendix A).

Geophysical Survey

Figure 2 provides the EM61 differential response for Survey Areas 1 and 2. Survey Area 1 was rectangular in shape and was located on the southern portion of the site. This area had a low response on the EM-61 indicating little or no buried metal. Some of the responses were correlated with small metal objects on, or just under, the ground surface.

Survey Area 2 was located on the northern portion of the site and had an irregular shape due to the accessibility limitations of the survey equipment created by high vegetation and a debris pile. The northern and western portions of Survey Area 2 had a higher differential response indicating significant levels of buried metal in three target areas (Target Area 1, Target Area 2, and Target Area 3) as indicated on Figure 2.

Target Area 1 contained the largest metal anomaly (20 x 60 feet) and based on GPR data collected during the site visit in August, was the most likely to contain buried drums (REAC, 2008). The GPR data showed chaotic regions in the profiles from the radar waves reflecting off surfaces that are not parallel to the surface or to each other. There also appeared to be a disturbed area above the anomalies. These anomalies are also large enough to be caused by metal objects several feet long.

Target Area 2 had the second largest metal anomaly. Based on the GPR data collected during this investigation, it appeared this area contained smaller metal objects (about 2 feet across) and metal reinforced concrete (Figure 4). Target Area 3 had the smallest anomaly of the three target areas and based on the GPR data appeared to contain smaller pieces of metal dispersed throughout the target area (Figure 4).

Based on the results of the geophysical survey, Target Area 1 is most likely to contain buried 55-gallon drums. The excavation of test pits would be required to definitively conclude whether the anomalies observed during the survey were 55-gallon drums and not other metal debris. Although Target Area 2 contained the second largest metal anomaly, the GPR indicated that this anomaly was likely caused by smaller metal objects and metal reinforced concrete. The GPR data show no indication of drums being buried in Target Area 2, but if Target Area 1 is excavated Target Area 2 should also be excavated because of its small size and proximity to Target Area 1.

Soil Sampling

Seven surficial surface soil samples and two subsurface soil samples were collected in Target Areas 2 and 3 (Figure 3). The samples were submitted for VOC, SVOC, Pesticide/PCBs, and metals analyses. Tables 1 through 4 contain a summary of the analytical results. A discussion of the analytical methods and the validated data are included in the Final Analytical Report (Appendix B).

Three semivolatile compounds were detected in the soil samples (Table 1). All three compounds were phthalates (di-n-butylphthalate, butylbenzylphthalate, and bis-(2-ethylhexyl) phthalate). All compounds were detected at low concentrations, below the reporting limit with the exception of butylphthalate, which was detected at a concentration of 1,370 micrograms per kilogram ($\mu\text{g/kg}$) in the subsurface sample collected at Location 3 (6 to 12 inches depth).

Four pesticide compounds (p,p'-DDE, dieldrin, p,p'-DDD, and p,p'-DDD) and one PCB Aroclor (1260) were detected in the soil samples (Table 2). Of the four pesticide compounds, p,p'-DDE and p,p'-DDT were detected the most frequently and generally at the highest concentrations. The compound p,p'-DDE was found in eight of the nine soil samples and at concentrations up to 25.0 $\mu\text{g/kg}$ at Location 7 (surface); p,p'-DDT was detected in seven of the nine soil samples at concentrations up to 29.8 $\mu\text{g/kg}$ at Location 3 (6 to 12 inches depth). Aroclor 1260 was the only PCB Aroclor detected in the soil samples, but it was detected in every sample at concentrations up to 133 $\mu\text{g/kg}$ in the surface sample collected at Location 5 (surface).

Only one volatile compound (acetone) was detected in the soil samples (Table 3). Acetone was detected in three of the nine samples and was only detected at concentrations below the Reporting Limit (RL).

Twenty-one metals were detected in the soil samples (Table 4). There was no trend between location and metal concentration (i.e., no one location overall contained the highest metal concentrations). Arsenic was detected at concentrations up to 6.96 milligrams per kilogram (mg/kg), chromium at concentrations up to 727 mg/kg, copper at concentrations up to 45.1 mg/kg, lead at concentrations up to 243 mg/kg, mercury at concentrations up to 0.119 mg/kg, and zinc up to 208 mg/kg.

The concentrations of metals in surface soils collected during this investigation were compared to the EPA Region 3 Risk-Based Concentration (RBC) Table (EPA Region III, 2008) for soil screening levels (SL). These tables provide guidance to help determine if contaminants may be present at levels of potential concern. Generally, at sites where contaminant concentrations fall below SLs, no further action or study is warranted under the Superfund program. Contaminant concentrations above the SL would not automatically trigger a response action; however, exceeding a SL suggests that further evaluation of the potential risks by site contaminants is appropriate.

Based on the close proximity and potential exposure to children, the TAL metals concentrations were compared to the USEPA Region 3 Residential Soil Screening levels. Total chromium (assumed 1:6 ratio hexavalent chromium to trivalent chromium) that ranged up to 727 mg/kg of total chromium exceeded the residential SL of 280 mg/kg for all soil samples. Chromium appears to be the primary soil contaminant of concern. Further investigation of metals in soil, particularly chromium should be considered for the remainder of the site.

With the exception of chromium, low levels of other contaminants were detected throughout Target Areas 1 and 2 in surface and subsurface soil samples. Without additional sampling and assessment, it is impossible to conclude whether these contaminants are related to drums that may have been buried on the site or to background levels throughout the general area. Site soils appear to consist mainly of fill so it is unknown if these contaminants are site related or are associated with the fill.

FUTURE ACTIVITIES

No future activities are expected at this time.

REFERENCES

US EPA Region 3. 2008. Master Regional Screening Level Table. Oak Ridge National Laboratory. Available at http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/Generic_Tables/index.htm.

Table 1
Semivolatiles Results - Soil Samples
Public Works Site
Guanica, PR

All Concentrations in micrograms/kilogram, dry weight

Sample Location	Sample Number	Sample Date	Di-n-butylphthalate	Butylbenzylphthalate	Bis-(2-ethylhexyl) phthalate
Location 1 (Surface)	00358-0001	September 25, 2008	U	411 J	118 J
Location 2 (Surface)	00358-0002	September 25, 2008	U	U	U
Location 3 (Surface)	00358-0003	September 25, 2008	U	449 J	148 J
Location 3 (6" to 12")	00358-0004	September 25, 2008	182 J	1,370	212 J
Location 4 (Surface)	00358-0005	September 25, 2008	U	U	U
Location 4 (6" to 12")	00358-0006	September 25, 2008	U	U	U
Location 5 (Surface)	00358-0007	September 25, 2008	167 J	U	U
Location 6 (Surface)	00358-0008	September 25, 2008	U	162 J	463
Location 7 (Surface)	00358-0009	September 25, 2008	U	179 J	204 J

J denotes value is estimated.

U denotes not detected.

Table 2
Pesticide/Polychlorinated Biphenyls Results - Soil Samples
Public Works Site
Guanica, PR

All Concentrations in micrograms/kilogram, dry weight

DRAFT PRELIMINARY DATA

Sample Location	Sample Number	Sample Date	p,p'-D D E	Dieldrin	p,p'-D D D	p,p'-D D T	Aroclor 1260
Location 1 (Surface)	00358-0001	September 25, 2008	U	U	U	U J	26.0 J
Location 2 (Surface)	00358-0002	September 25, 2008	4.93	U	U	6.32 J	42.6 J
Location 3 (Surface)	00358-0003	September 25, 2008	1.66 J	U	U	4.34 J	70.4
Location 3 (6" to 12")	00358-0004	September 25, 2008	12.9	U	2.63 J	29.8 J	99.6
Location 4 (Surface)	00358-0005	September 25, 2008	3.17 J	4.72	U	8.99 J	79.7
Location 4 (6" to 12")	00358-0006	September 25, 2008	2.76 J	10.4	2.01 J	6.69 J	54.0
Location 5 (Surface)	00358-0007	September 25, 2008	4.21 J	U	U	U J	133
Location 6 (Surface)	00358-0008	September 25, 2008	18.4	U	U	15.2	84.1
Location 7 (Surface)	00358-0009	September 25, 2008	25.0	1.79 J	2.43 J	8.83 J	52.0

J denotes value is estimated.

U denotes not detected.

UJ denotes not detected and reporting limit is estimated.

Table 3
Volatiles Results - Soil Samples
Public Works Site
Guanica, PR

All Concentrations in micrograms/kilogram, dry weight

Sample Location	Sample Number	Sample Date	Acetone
Location 1 (Surface)	00358-0001	September 25, 2008	28.1 J
Location 2 (Surface)	00358-0002	September 25, 2008	U
Location 3 (Surface)	00358-0003	September 25, 2008	13.4 J
Location 3 (6" to 12")	00358-0004	September 25, 2008	U
Location 4 (Surface)	00358-0005	September 25, 2008	U
Location 4 (6" to 12")	00358-0006	September 25, 2008	U
Location 5 (Surface)	00358-0007	September 25, 2008	15.8 J
Location 6 (Surface)	00358-0008	September 25, 2008	U
Location 7 (Surface)	00358-0009	September 25, 2008	U

J denotes value is estimated.

U denotes not detected.

Table 4
TAL Metals Results - Soil Samples
Public Works Site
Guanica, PR

All Concentrations in milligrams/kilogram, dry weight

Sample Location	Location 1 (Surface)	Location 2 (Surface)	Location 3 (Surface)	Location 3 (6" to 12")	Location 4 (Surface)	Location 4 (6" to 12")	Location 5 (Surface)	Location 6 (Surface)	Location 7 (Surface)
Sample Number	00358-0001	00358-0002	00358-0003	00358-0004	00358-0005	00358-0006	00358-0007	00358-0008	00358-0009
Percent Solids	71	77	74	77	71	86	73	80	82
Aluminum	11,400	12,500	10,700	12,100	10,800	8,330	10,500	13,000	14,900
Arsenic	6.96	3.42	3.20	4.49	3.41	2.78	2.99	3.14	3.57
Barium	97.9 J+	57.3 J+	65.4 J+	89.1 J+	65.9 J+	80.8 J+	47.9 J+	59.7 J+	74.1 J+
Beryllium	0.278	U	U	U	U	U	U	U	U
Cadmium	U	0.558	0.497	1.09	0.569	0.325	0.396	0.458	0.602
Calcium	49,000	83,500	58,900	87,300	89,500	117,000	65,500	67,600	82,400
Chromium	527	547	661	548	557	298	727	563	527
Cobalt	42.9	39.6	47.7	49.0	57.0	26.9	58.5	47.1	45.8
Copper	37.8	45.1	31.7	36.4	31.6	25.9	30.4	34.5	40.4
Iron	41,700	36,100	41,700	52,900	39,400	27,200	41,900	40,700	39,000
Lead	13.1 J+	26.8 J+	36.8 J+	243 J+	30.4 J+	10.3 J+	19.7 J+	53.2 J+	28.9 J+
Magnesium	82,800	69,300	84,400	83,200	94,700	53,300	103,000	89,200	67,600
Manganese	879	571	591	654	647	540	635	603	609
Mercury	0.0656	0.0567	0.0452	0.119	0.0795	0.0359	0.0489	0.121	0.153
Nickel	759	663	842	829	937	447	1,060	788	707 J
Potassium	839 J	1,240 J	1,030 J	891 J	743 J	587 J	800 J	1,190 J	1,240 J
Silver	U	U	U	U	U	U	0.580	U	U
Sodium	167	187	172	205	195	176	165	226	160
Thallium	2.06	U	1.79	2.09	U	U	U	1.50	U
Vanadium	66.5 J-	65.0 J-	57.8 J-	60.3 J-	60.6 J-	63.4 J-	61.4 J-	64.3 J-	74.3 J-
Zinc	86.1 J+	126 J+	153 J+	208 J+	126 J+	72.0 J+	80.3 J+	122 J+	114 J+

J denotes value is estimated.

J+ denotes value is estimated high.

J- denotes value is estimated low.

U denotes not detected.



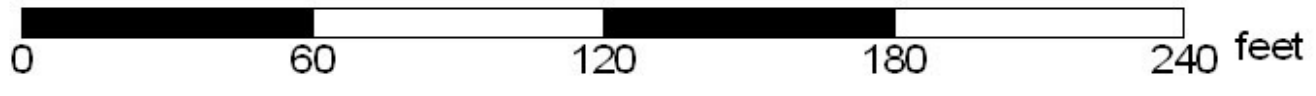
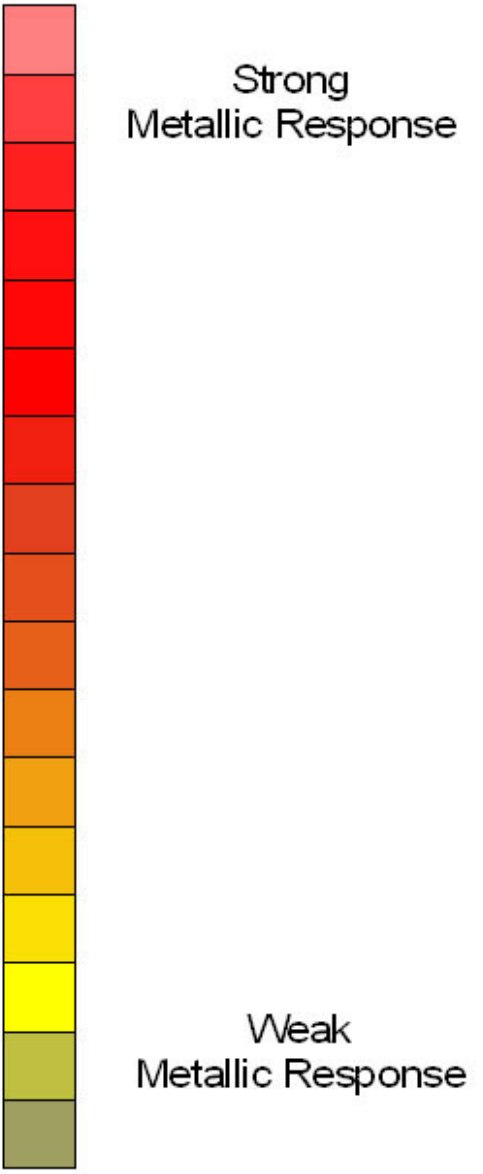
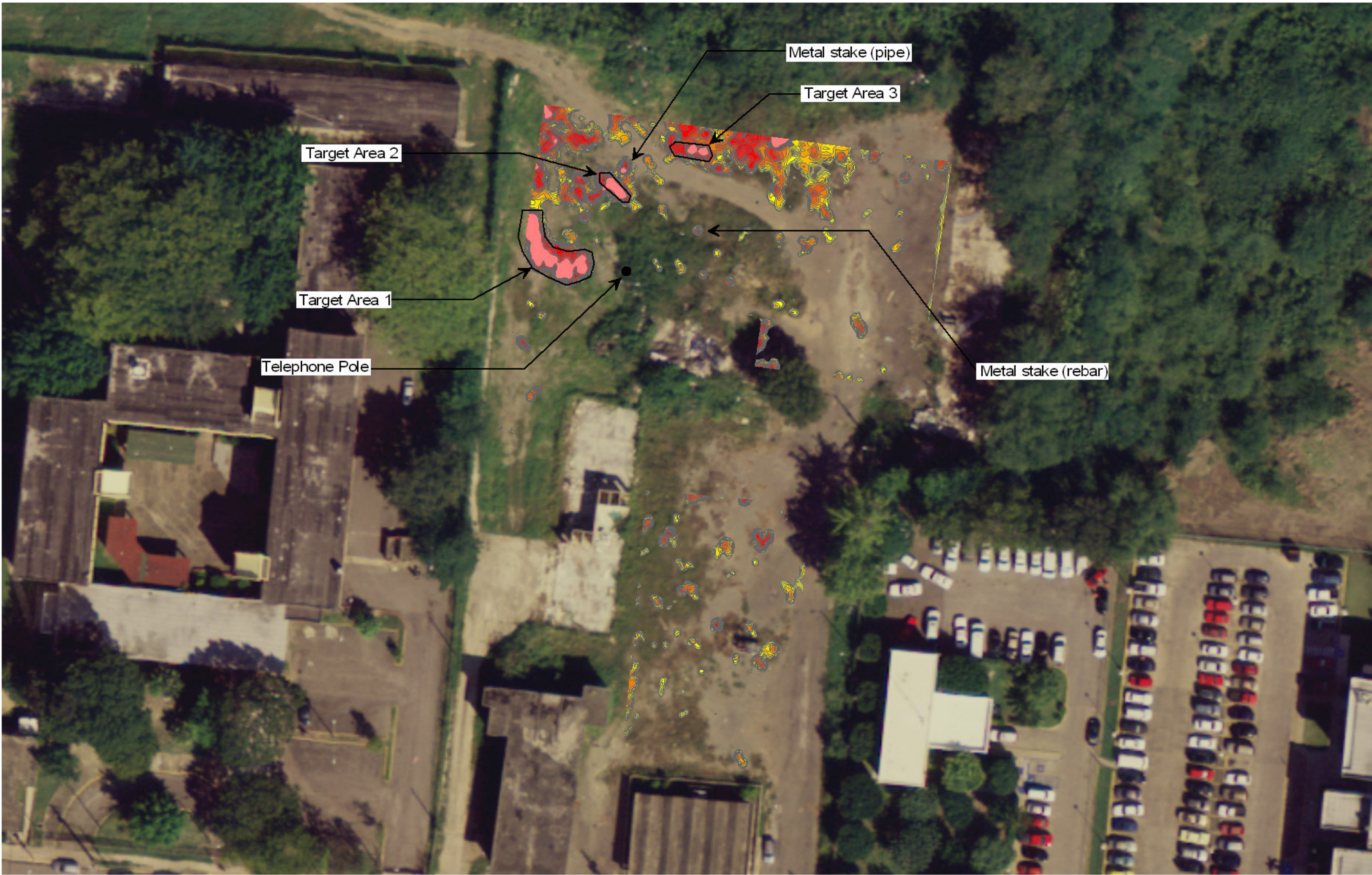
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Geophysical Investigation Areas

U.S. EPA ENVIRONMENTAL RESPONSE TEAM
RESPONSE ENGINEERING AND ANALYTICAL CONTRACT
EP-C-04-032
W.A.# 0-358

Figure 1
Site Overview
Guanica Public Works
Guanica, Puerto Rico



U.S. EPA ENVIRONMENTAL RESPONSE TEAM
RESPONSE ENGINEERING AND ANALYTICAL CONTRACT
EP-C-04-032
W.A.# 0-358

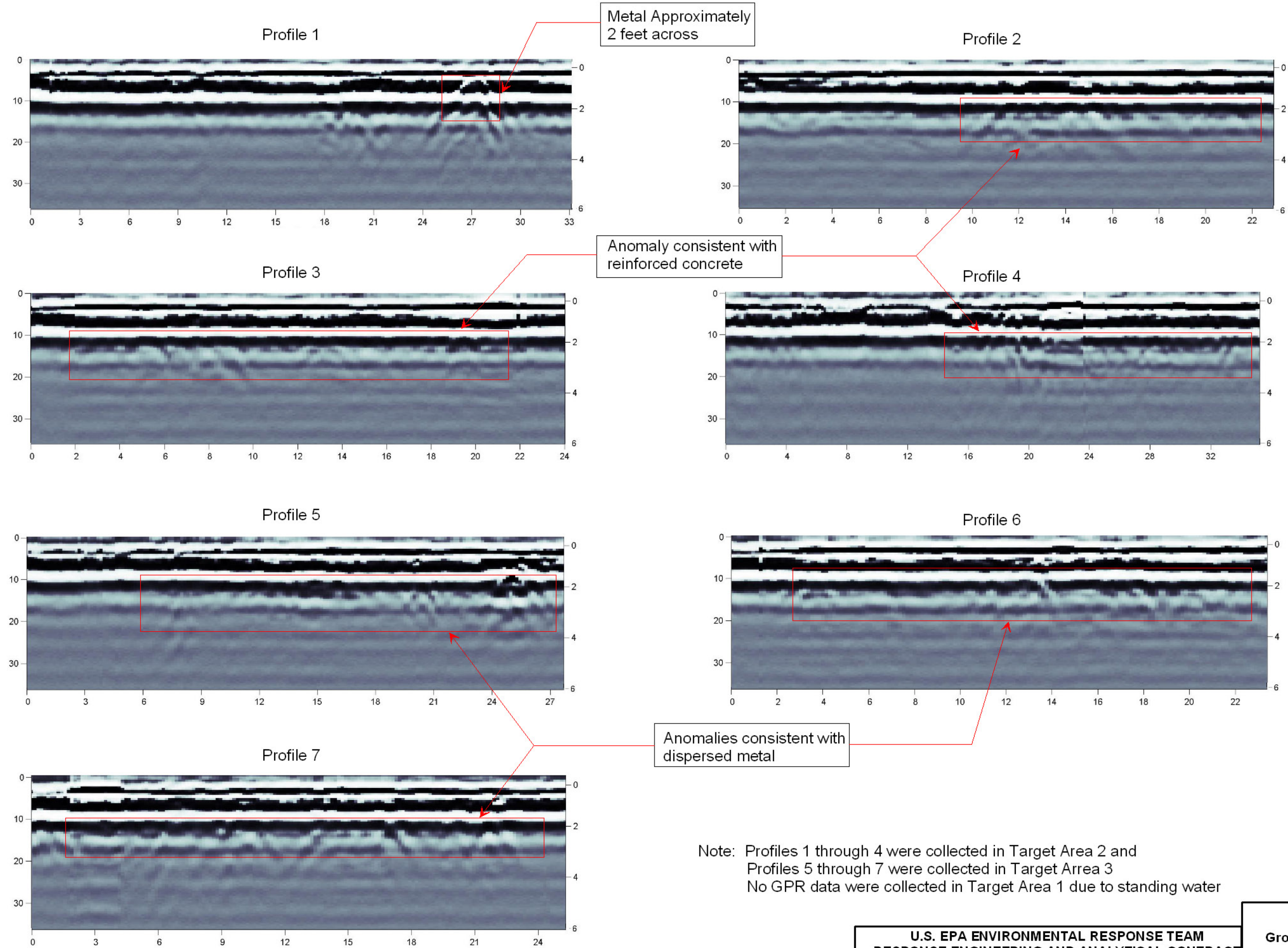
Figure 2
Peak EM-61 Differential Response Map
Guanica Public Works
Guanica, Puerto Rico



0 60 120 180 240 feet

U.S. EPA ENVIRONMENTAL RESPONSE TEAM
RESPONSE ENGINEERING AND ANALYTICAL CONTRACT
EP-C-04-032
W.A.# 0-358

Figure 3
Sample Location Map
Guanica Public Works
Guanica, Puerto Rico



APPENDIX A
Photodocumentation
Public Works Site
Guanica, Puerto Rico
November 2008



FIGURE 1. Looking south-west from north-east corner of Area 1.



FIGURE 2. Looking south at eastern portion of Area 2.



FIGURE 3. Looking south at central portion of Area 2.



FIGURE 4. Looking south at western portion of Area 2.



FIGURE 5. Northern boundary of Area 2.



FIGURE 6. Looking west across Target Area 1. Pin flags for sample locations 2 through 5 can be seen in photograph with location 5 in the foreground and 2 in the background.



FIGURE 7. Sample Location 4.



FIGURE 8. Sample Location 1.



FIGURE 9. Collecting EM-61 data in the western portion of Area 2.



FIGURE 10. Collecting Ground Penetrating Radar data in Area 2.

APPENDIX B
Final Analytical Report
Public Works Site
Guanica, Puerto Rico
November 2008

ANALYTICAL REPORT


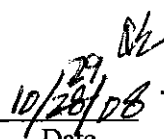
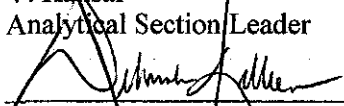
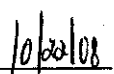
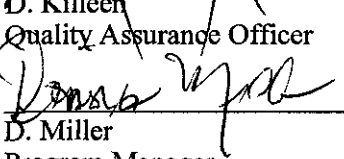

Prepared by
LOCKHEED MARTIN

Public Works Site
Guancia, Puerto Rico

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Submitted to
P. Campagna
EPA-ERT

 V. Kansal Analytical Section Leader	 10/28/08 Date
 D. Killeen Quality Assurance Officer	 10/28/08 Date
 D. Miller Program Manager	 10/29/08 Date

Analysis by:
REAC

Prepared by:
Y. Mehra

Reviewed by:
J. Soroka

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Appendices will be furnished upon request.

Introduction

REAC, in response to WA #0-358, provided analytical support for environmental samples collected from the Public Works Site, located in Guancia, Puerto Rico as described in the following table. The support also included QA/QC, data review and preparation of an analytical report containing the analytical and the QA/QC results.

The samples were treated with procedures consistent with those described in REAC SOP #1008.

COC #	Number of Samples	Sampling Date	Date Received	Matrix	Analysis/ Method	Laboratory	Data Package
00358-09/25/08-0001	9	09/25/08	09/26/08	Soil	VOC/REAC SOP 1807	REAC ¹	T 300
	9				SVOC/REAC SOP 1805		T 301
	9				Pesticide/PCB /REAC SOP 1801/1809		T 306
	9				TAL Metals/REAC SOP 1811/1832		T 302

¹ REAC is NELAC certified for VOC, SVOC, Pesticide/PCB and Metals Analysis.

Case Narrative

The data contained in this report have been validated to three significant figures. Any other interpretation of the data is the responsibility of the user.

VOC in Soil Package T 300

The internal standard chlorobenzene-d₅ area was below the QC limits for samples 00358-0002 and 00358-0008 on the initial and rerun analyses possibly due to matrix effects. The results for 4-methyl-2-pentanone, toluene, 2-hexanone, tetrachloroethene, chlorobenzene, 1,1,1,2-tetrachloroethane, ethylbenzene, p & m-xylene, o-xylene, styrene, isopropylbenzene, 1,1,2,2-tetrachloroethane, 1,2,3-trichloropropane, n-propylbenzene, bromobenzene, 1,3,5-trimethylbenzene, 2-chlorotoluene, 4-chlorotoluene, tert-butylbenzene, 1,2,4-trimethylbenzene, sec-butylbenzene, p-isopropyltoluene, 1,3-dichlorobenzene, 1,4-dichlorobenzene, n-butylbenzene, 1,2-dichlorobenzene, 1,2-dibromo-3-chloropropane, 1,2,4-trichlorobenzene, hexachlorobutadiene, naphthalene and 1,2,3-trichlorobenzene are qualified unusable (R) for the samples.

The dichlorodifluoromethane percent recovery was below and acetone was above the QC criteria for LCS BS 093008-1. The dichlorodifluoromethane results for samples 00358-0001 through -0009 are qualified estimated (UJ).

SVOC in Soil Package T 301

The pentachlorophenol percent recovery was below the QC criteria for LCS BS-50. The results for this compound are qualified estimated (UJ) for samples 00358-0001 through 00358-0009.

Metals in Soil Package T 302

Lead and nickel did not meet the %RPD criterion of the MS/MSD analysis of sample 00358-0009. Lead and nickel are qualified estimated (J) for sample 00358-0009.

Potassium and zinc did not meet the %D criterion for the serial dilution analysis of sample 00358-0009. Potassium and zinc are qualified estimated (J) for samples 00358-0001 through -0009.

Barium, lead, vanadium and zinc failed the % recovery criteria for the MS/MSD of sample 00358-0009. Barium, lead and zinc are qualified as estimated high (J+) and vanadium is qualified as estimated low (J-) for samples 00358-0001 through -0009.

Pesticides\PCBs in Soil Package T 306

For the continuing calibration check on 10/2/08, p,p'-DDD exceeded the percent difference criterion. For the end of sequence calibration check on 10/2/08, p,p'-DDD and p,p'-DDT exceeded the percent difference criteria on both columns. The p,p'-DDD results for samples 00358-0004, 00358-0006 and 00358-0009 and the p,p'-DDT results for samples 00358-0001 and 00358-0007 are qualified estimated (J).

For the end of sequence calibration check on 10/3/08, p,p'-DDT exceeded the percent difference criterion on both columns. The p,p'-DDT results for samples 00358-0002 through -0006 and 00358-0009 are qualified estimated (J).

The RPD for p,p'-DDD between the two column concentrations exceeded the QC limits for samples 00358-0006 and 00358-0009. The higher results from the second column are reported and qualified estimated (J) for these samples.

Summary of Abbreviations

BFB	Bromofluorobenzene
C	Centigrade
CLP	Contract Laboratory Program
COC	Chain of Custody
conc	concentration
cont	continued
CRDL	Contract Required Detection Limit
CRQL	Contract Required Quantitation Limit
D	(Surrogate Table) value is from a diluted sample and was not calculated
Dioxin	Polychlorinated dibenzo-p-dioxins (PCDD) and Polychlorinated dibenzofurans (PCDF)
DFTPP	Decafluorotriphenylphosphine
EMPC	Estimated maximum possible concentration
GC/MS	Gas Chromatography/ Mass Spectrometry
IS	Internal Standard
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MDA	Minimum Detectable Activity
MS (BS)	Matrix Spike (Blank Spike)
MSD (BSD)	Matrix Spike Duplicate (Blank Spike Duplicate)
MW	Molecular Weight
NA	Not Applicable or Not Available
NAD	Normalized Absolute Difference
NC	Not Calculated
NR	Not Requested/Not Reported
NS	Not Spiked
% D	Percent Difference
% REC	Percent Recovery
SOP	Standard Operating Procedure
ppbv	parts per billion by volume
ppm	parts per million
pptv	parts per trillion by volume
PQL	Practical Quantitation Limit
QA/QC	Quality Assurance/Quality Control
QL	Quantitation Limit
REAC	Response Engineering and Analytical Contract
RL	Reporting Limit
RPD	Relative Percent Difference
RSD	Relative Standard Deviation
SIM	Selected Ion Monitoring
Sur	Surrogate
TIC	Tentatively Identified Compound
TCLP	Toxicity Characteristic Leaching Procedure
VOC	Volatile Organic Compound
*	Value exceeds the acceptable QC limits.

m ³	cubic meter	g	gram	kg	kilogram	L	liter
μg	microgram	μL	microliter	mg	milligram	mL	milliliter
ng	nanogram	pg	picogram	pCi	picocurie	s	sigma

Data Validation Flags

J	Value is estimated	R	Value is unusable
J+	Value is estimated high (metals only)	U	Not detected
J-	Value is estimated low (metals only)	UJ	Not detected and RL is estimated

Rev. 02/05/08

Table 1.1 Results of the Analysis for VOC in Soil
WA # 0-358 Public Works Site
Results Based on Dry Weight

Page 1 of 3

Method: REAC SOP 1807

Sample Number	Soil Blank B 093008-2		00358-0001		00358-0002		00358-0003		00358-0004	
Sample Location:			1		2		3		3	
Sub Location			Surface		Surface		Surface		Subsurface	
Percent Solids	100		71		77		74		77	
Analyte	Result µg/kg	RL µg/kg	Result µg/kg	RL µg/kg	Result µg/kg	RL µg/kg	Result µg/kg	RL µg/kg	Result µg/kg	RL µg/kg
Dichlorodifluoromethane	U	5.00	U J	7.04	U J	6.49	U J	6.76	U J	6.49
Chloromethane	U	5.00	U	7.04	U	6.49	U	6.76	U	6.49
Vinyl Chloride	U	5.00	U	7.04	U	6.49	U	6.76	U	6.49
Bromomethane	U	5.00	U	7.04	U	6.49	U	6.76	U	6.49
Chloroethane	U	5.00	U	7.04	U	6.49	U	6.76	U	6.49
Trichlorofluoromethane	U	5.00	U	7.04	U	6.49	U	6.76	U	6.49
Acetone	U	20.0	28.1 J	28.2	U	26.0	13.4 J	27.0	U	26.0
1,1-Dichloroethene	U	5.00	U	7.04	U	6.49	U	6.76	U	6.49
Methylene Chloride	U	5.00	U	7.04	U	6.49	U	6.76	U	6.49
Carbon Disulfide	U	5.00	U	7.04	U	6.49	U	6.76	U	6.49
Methyl tert-Butyl Ether	U	5.00	U	7.04	U	6.49	U	6.76	U	6.49
trans-1,2-Dichloroethene	U	5.00	U	7.04	U	6.49	U	6.76	U	6.49
1,1 Dichloroethane	U	5.00	U	7.04	U	6.49	U	6.76	U	6.49
2-Butanone	U	5.00	U	7.04	U	6.49	U	6.76	U	6.49
2,2-Dichloropropane	U	5.00	U	7.04	U	6.49	U	6.76	U	6.49
cis-1,2-Dichloroethene	U	5.00	U	7.04	U	6.49	U	6.76	U	6.49
Chloroform	U	5.00	U	7.04	U	6.49	U	6.76	U	6.49
1,1-Dichloropropene	U	5.00	U	7.04	U	6.49	U	6.76	U	6.49
1,2-Dichloroethane	U	5.00	U	7.04	U	6.49	U	6.76	U	6.49
1,1,1-Trichloroethane	U	5.00	U	7.04	U	6.49	U	6.76	U	6.49
Carbon Tetrachloride	U	5.00	U	7.04	U	6.49	U	6.76	U	6.49
Benzene	U	5.00	U	7.04	U	6.49	U	6.76	U	6.49
Trichloroethene	U	5.00	U	7.04	U	6.49	U	6.76	U	6.49
1,2-Dichloropropane	U	5.00	U	7.04	U	6.49	U	6.76	U	6.49
Bromodichloromethane	U	5.00	U	7.04	U	6.49	U	6.76	U	6.49
Dibromomethane	U	5.00	U	7.04	U	6.49	U	6.76	U	6.49
cis-1,3-Dichloropropene	U	20.0	U	28.2	U	26.0	U	27.0	U	26.0
trans-1,3-Dichloropropene	U	5.00	U	7.04	U	6.49	U	6.76	U	6.49
1,1,2-Trichloroethane	U	5.00	U	7.04	U	6.49	U	6.76	U	6.49
1,3-Dichloropropane	U	5.00	U	7.04	U	6.49	U	6.76	U	6.49
Dibromochloromethane	U	5.00	U	7.04	U	6.49	U	6.76	U	6.49
1,2-Dibromoethane	U	5.00	U	7.04	U	6.49	U	6.76	U	6.49
Bromoform	U	5.00	U	7.04	U	6.49	U	6.76	U	6.49
4-Methyl-2-Pentanone	U	20.0	U	28.2	R		U	27.0	U	26.0
Toluene	U	5.00	U	7.04	R		U	6.76	U	6.49
2-Hexanone	U	20.0	U	28.2	R		U	27.0	U	26.0
Tetrachloroethene	U	5.00	U	7.04	R		U	6.76	U	6.49
Chlorobenzene	U	5.00	U	7.04	R		U	6.76	U	6.49
1,1,1,2-Tetrachloroethane	U	5.00	U	7.04	R		U	6.76	U	6.49
Ethylbenzene	U	5.00	U	7.04	R		U	6.76	U	6.49
p&m-Xylene	U	10.0	U	14.1	R		U	13.5	U	13.0
o-Xylene	U	20.0	U	28.2	R		U	27.0	U	26.0
Styrene	U	5.00	U	7.04	R		U	6.76	U	6.49
Isopropylbenzene	U	20.0	U	28.2	R		U	27.0	U	26.0
1,1,2,2-Tetrachloroethane	U	5.00	U	7.04	R		U	6.76	U	6.49
1,2,3-Trichloropropane	U	5.00	U	7.04	R		U	6.76	U	6.49
n-Propylbenzene	U	5.00	U	7.04	R		U	6.76	U	6.49
Bromobenzene	U	5.00	U	7.04	R		U	6.76	U	6.49
1,3,5-Trimethylbenzene	U	5.00	U	7.04	R		U	6.76	U	6.49
2-Chlorotoluene	U	5.00	U	7.04	R		U	6.76	U	6.49
4-Chlorotoluene	U	5.00	U	7.04	R		U	6.76	U	6.49
tert-Butylbenzene	U	20.0	U	28.2	R		U	27.0	U	26.0
1,2,4-Trimethylbenzene	U	5.00	U	7.04	R		U	6.76	U	6.49
sec-Butylbenzene	U	20.0	U	28.2	R		U	27.0	U	26.0
p-Isopropyltoluene	U	20.0	U	28.2	R		U	27.0	U	26.0
1,3-Dichlorobenzene	U	5.00	U	7.04	R		U	6.76	U	6.49
1,4-Dichlorobenzene	U	5.00	U	7.04	R		U	6.76	U	6.49
n-Butylbenzene	U	20.0	U	28.2	R		U	27.0	U	26.0
1,2-Dichlorobenzene	U	5.00	U	7.04	R		U	6.76	U	6.49
1,2-Dibromo-3-Chloropropane	U	5.00	U	7.04	R		U	6.76	U	6.49
1,2,4-Trichlorobenzene	U	5.00	U	7.04	R		U	6.76	U	6.49
Hexachlorobutadiene	U	5.00	U	7.04	R		U	6.76	U	6.49
Naphthalene	U	20.0	U	28.2	R		U	27.0	U	26.0
1,2,3-Trichlorobenzene	U	5.00	U	7.04	R		U	6.76	U	6.49

Table 1.1 (cont) Results of the Analysis for VOC in Soil
WA # 0-358 Public Works Site
Results Based on Dry Weight

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Method: REAC SOP 1807

Sample Number	Soil Blank B 093008-2		00358-0005		00358-0006		00358-0008	
Sample Location:			4		4		6	
Sub Location			Surface		Subsurface		Surface	
Percent Solids	100		71		86		80	
Analyte	Result µg/kg	RL µg/kg	Result µg/kg	RL µg/kg	Result µg/kg	RL µg/kg	Result µg/kg	RL µg/kg
Dichlorodifluoromethane	U	5.00	U J 7.04	U J 7.04	U J 5.81	U J 5.81	U J 6.25	U J 6.25
Chloromethane	U	5.00	U 7.04	U 7.04	U 5.81	U 5.81	U 6.25	U 6.25
Vinyl Chloride	U	5.00	U 7.04	U 7.04	U 5.81	U 5.81	U 6.25	U 6.25
Bromomethane	U	5.00	U 7.04	U 7.04	U 5.81	U 5.81	U 6.25	U 6.25
Chloroethane	U	5.00	U 7.04	U 7.04	U 5.81	U 5.81	U 6.25	U 6.25
Trichlorofluoromethane	U	5.00	U 7.04	U 7.04	U 5.81	U 5.81	U 6.25	U 6.25
Acetone	U	20.0	U 28.2	U 28.2	U 23.3	U 23.3	U 25.0	U 25.0
1,1-Dichloroethene	U	5.00	U 7.04	U 7.04	U 5.81	U 5.81	U 6.25	U 6.25
Methylene Chloride	U	5.00	U 7.04	U 7.04	U 5.81	U 5.81	U 6.25	U 6.25
Carbon Disulfide	U	5.00	U 7.04	U 7.04	U 5.81	U 5.81	U 6.25	U 6.25
Methyl tert-Butyl Ether	U	5.00	U 7.04	U 7.04	U 5.81	U 5.81	U 6.25	U 6.25
trans-1,2-Dichloroethene	U	5.00	U 7.04	U 7.04	U 5.81	U 5.81	U 6.25	U 6.25
1,1 Dichloroethane	U	5.00	U 7.04	U 7.04	U 5.81	U 5.81	U 6.25	U 6.25
2-Butanone	U	5.00	U 7.04	U 7.04	U 5.81	U 5.81	U 6.25	U 6.25
2,2-Dichloropropane	U	5.00	U 7.04	U 7.04	U 5.81	U 5.81	U 6.25	U 6.25
cis-1,2-Dichloroethene	U	5.00	U 7.04	U 7.04	U 5.81	U 5.81	U 6.25	U 6.25
Chloroform	U	5.00	U 7.04	U 7.04	U 5.81	U 5.81	U 6.25	U 6.25
1,1-Dichloropropene	U	5.00	U 7.04	U 7.04	U 5.81	U 5.81	U 6.25	U 6.25
1,2-Dichloroethane	U	5.00	U 7.04	U 7.04	U 5.81	U 5.81	U 6.25	U 6.25
1,1,1-Trichloroethane	U	5.00	U 7.04	U 7.04	U 5.81	U 5.81	U 6.25	U 6.25
Carbon Tetrachloride	U	5.00	U 7.04	U 7.04	U 5.81	U 5.81	U 6.25	U 6.25
Benzene	U	5.00	U 7.04	U 7.04	U 5.81	U 5.81	U 6.25	U 6.25
Trichloroethene	U	5.00	U 7.04	U 7.04	U 5.81	U 5.81	U 6.25	U 6.25
1,2-Dichloropropane	U	5.00	U 7.04	U 7.04	U 5.81	U 5.81	U 6.25	U 6.25
Bromodichloromethane	U	5.00	U 7.04	U 7.04	U 5.81	U 5.81	U 6.25	U 6.25
Dibromomethane	U	5.00	U 7.04	U 7.04	U 5.81	U 5.81	U 6.25	U 6.25
cis-1,3-Dichloropropene	U	20.0	U 28.2	U 28.2	U 23.3	U 23.3	U 25.0	U 25.0
trans-1,3-Dichloropropene	U	5.00	U 7.04	U 7.04	U 5.81	U 5.81	U 6.25	U 6.25
1,1,2-Trichloroethane	U	5.00	U 7.04	U 7.04	U 5.81	U 5.81	U 6.25	U 6.25
1,3-Dichloropropane	U	5.00	U 7.04	U 7.04	U 5.81	U 5.81	U 6.25	U 6.25
Dibromochloromethane	U	5.00	U 7.04	U 7.04	U 5.81	U 5.81	U 6.25	U 6.25
1,2-Dibromoethane	U	5.00	U 7.04	U 7.04	U 5.81	U 5.81	U 6.25	U 6.25
Bromoform	U	5.00	U 7.04	U 7.04	U 5.81	U 5.81	U 6.25	U 6.25
4-Methyl-2-Pentanone	U	20.0	U 28.2	U 28.2	U 23.3	U 23.3	R	R
Toluene	U	5.00	U 7.04	U 7.04	U 5.81	U 5.81	R	R
2-Hexanone	U	20.0	U 28.2	U 28.2	U 23.3	U 23.3	R	R
Tetrachloroethene	U	5.00	U 7.04	U 7.04	U 5.81	U 5.81	R	R
Chlorobenzene	U	5.00	U 7.04	U 7.04	U 5.81	U 5.81	R	R
1,1,1,2-Tetrachloroethane	U	5.00	U 7.04	U 7.04	U 5.81	U 5.81	R	R
Ethylbenzene	U	5.00	U 7.04	U 7.04	U 5.81	U 5.81	R	R
p&m-Xylene	U	10.0	U 14.1	U 14.1	U 11.6	U 11.6	R	R
o-Xylene	U	20.0	U 28.2	U 28.2	U 23.3	U 23.3	R	R
Styrene	U	5.00	U 7.04	U 7.04	U 5.81	U 5.81	R	R
Isopropylbenzene	U	20.0	U 28.2	U 28.2	U 23.3	U 23.3	R	R
1,1,2,2-Tetrachloroethane	U	5.00	U 7.04	U 7.04	U 5.81	U 5.81	R	R
1,2,3-Trichloropropane	U	5.00	U 7.04	U 7.04	U 5.81	U 5.81	R	R
n-Propylbenzene	U	5.00	U 7.04	U 7.04	U 5.81	U 5.81	R	R
Bromobenzene	U	5.00	U 7.04	U 7.04	U 5.81	U 5.81	R	R
1,3,5-Trimethylbenzene	U	5.00	U 7.04	U 7.04	U 5.81	U 5.81	R	R
2-Chlorotoluene	U	5.00	U 7.04	U 7.04	U 5.81	U 5.81	R	R
4-Chlorotoluene	U	5.00	U 7.04	U 7.04	U 5.81	U 5.81	R	R
tert-Butylbenzene	U	20.0	U 28.2	U 28.2	U 23.3	U 23.3	R	R
1,2,4-Trimethylbenzene	U	5.00	U 7.04	U 7.04	U 5.81	U 5.81	R	R
sec-Butylbenzene	U	20.0	U 28.2	U 28.2	U 23.3	U 23.3	R	R
p-Isopropyltoluene	U	20.0	U 28.2	U 28.2	U 23.3	U 23.3	R	R
1,3-Dichlorobenzene	U	5.00	U 7.04	U 7.04	U 5.81	U 5.81	R	R
1,4-Dichlorobenzene	U	5.00	U 7.04	U 7.04	U 5.81	U 5.81	R	R
n-Butylbenzene	U	20.0	U 28.2	U 28.2	U 23.3	U 23.3	R	R
1,2-Dichlorobenzene	U	5.00	U 7.04	U 7.04	U 5.81	U 5.81	R	R
1,2-Dibromo-3-Chloropropane	U	5.00	U 7.04	U 7.04	U 5.81	U 5.81	R	R
1,2,4-Trichlorobenzene	U	5.00	U 7.04	U 7.04	U 5.81	U 5.81	R	R
Hexachlorobutadiene	U	5.00	U 7.04	U 7.04	U 5.81	U 5.81	R	R
Naphthalene	U	20.0	U 28.2	U 28.2	U 23.3	U 23.3	R	R
1,2,3-Trichlorobenzene	U	5.00	U 7.04	U 7.04	U 5.81	U 5.81	R	R

Table 1.1 (cont) Results of the Analysis for VOC in Soil
WA # 0-358 Public Works Site
Results Based on Dry Weight

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Method: REAC SOP 1807

Sample Number	Soil Blank B 100108-2		00358-0009		00358-0007	
	100		82		73	
Sample Location:			Surface		Surface	
Sub Location						
Percent Solids						
Analyte	Result µg/kg	RL µg/kg	Result µg/kg	RL µg/kg	Result µg/kg	RL µg/kg
Dichlorodifluoromethane	U	5.00	U J 6.10	U J 6.85	U J 6.85	U J 6.85
Chloromethane	U	5.00	U 6.10	U 6.85	U 6.85	U 6.85
Vinyl Chloride	U	5.00	U 6.10	U 6.85	U 6.85	U 6.85
Bromomethane	U	5.00	U 6.10	U 6.85	U 6.85	U 6.85
Chloroethane	U	5.00	U 6.10	U 6.85	U 6.85	U 6.85
Trichlorofluoromethane	U	5.00	U 6.10	U 6.85	U 6.85	U 6.85
Acetone	U	20.0	U 24.4	15.8 J 27.4	U 6.85	U 6.85
1,1-Dichloroethene	U	5.00	U 6.10	U 6.85	U 6.85	U 6.85
Methylene Chloride	U	5.00	U 6.10	U 6.85	U 6.85	U 6.85
Carbon Disulfide	U	5.00	U 6.10	U 6.85	U 6.85	U 6.85
Methyl tert-Butyl Ether	U	5.00	U 6.10	U 6.85	U 6.85	U 6.85
trans-1,2-Dichloroethene	U	5.00	U 6.10	U 6.85	U 6.85	U 6.85
1,1 Dichloroethane	U	5.00	U 6.10	U 6.85	U 6.85	U 6.85
2-Butanone	U	5.00	U 6.10	U 6.85	U 6.85	U 6.85
2,2-Dichloropropane	U	5.00	U 6.10	U 6.85	U 6.85	U 6.85
cis-1,2-Dichloroethene	U	5.00	U 6.10	U 6.85	U 6.85	U 6.85
Chloroform	U	5.00	U 6.10	U 6.85	U 6.85	U 6.85
1,1-Dichloropropene	U	5.00	U 6.10	U 6.85	U 6.85	U 6.85
1,2-Dichloroethane	U	5.00	U 6.10	U 6.85	U 6.85	U 6.85
1,1,1-Trichloroethane	U	5.00	U 6.10	U 6.85	U 6.85	U 6.85
Carbon Tetrachloride	U	5.00	U 6.10	U 6.85	U 6.85	U 6.85
Benzene	U	5.00	U 6.10	U 6.85	U 6.85	U 6.85
Trichloroethene	U	5.00	U 6.10	U 6.85	U 6.85	U 6.85
1,2-Dichloropropane	U	5.00	U 6.10	U 6.85	U 6.85	U 6.85
Bromodichloromethane	U	5.00	U 6.10	U 6.85	U 6.85	U 6.85
Dibromomethane	U	5.00	U 6.10	U 6.85	U 6.85	U 6.85
cis-1,3-Dichloropropene	U	20.0	U 24.4	U 27.4	U 6.85	U 6.85
trans-1,3-Dichloropropene	U	5.00	U 6.10	U 6.85	U 6.85	U 6.85
1,1,2-Trichloroethane	U	5.00	U 6.10	U 6.85	U 6.85	U 6.85
1,3-Dichloropropane	U	5.00	U 6.10	U 6.85	U 6.85	U 6.85
Dibromochloromethane	U	5.00	U 6.10	U 6.85	U 6.85	U 6.85
1,2-Dibromoethane	U	5.00	U 6.10	U 6.85	U 6.85	U 6.85
Bromoform	U	5.00	U 6.10	U 6.85	U 6.85	U 6.85
4-Methyl-2-Pentanone	U	20.0	U 24.4	U 27.4	U 6.85	U 6.85
Toluene	U	5.00	U 6.10	U 6.85	U 6.85	U 6.85
2-Hexanone	U	20.0	U 24.4	U 27.4	U 6.85	U 6.85
Tetrachloroethene	U	5.00	U 6.10	U 6.85	U 6.85	U 6.85
Chlorobenzene	U	5.00	U 6.10	U 6.85	U 6.85	U 6.85
1,1,1,2-Tetrachloroethane	U	5.00	U 6.10	U 6.85	U 6.85	U 6.85
Ethylbenzene	U	5.00	U 6.10	U 6.85	U 6.85	U 6.85
p&m-Xylene	U	10.0	U 12.2	U 13.7	U 6.85	U 6.85
o-Xylene	U	20.0	U 24.4	U 27.4	U 6.85	U 6.85
Styrene	U	5.00	U 6.10	U 6.85	U 6.85	U 6.85
Isopropylbenzene	U	20.0	U 24.4	U 27.4	U 6.85	U 6.85
1,1,2,2-Tetrachloroethane	U	5.00	U 6.10	U 6.85	U 6.85	U 6.85
1,2,3-Trichloropropane	U	5.00	U 6.10	U 6.85	U 6.85	U 6.85
n-Propylbenzene	U	5.00	U 6.10	U 6.85	U 6.85	U 6.85
Bromobenzene	U	5.00	U 6.10	U 6.85	U 6.85	U 6.85
1,3,5-Trimethylbenzene	U	5.00	U 6.10	U 6.85	U 6.85	U 6.85
2-Chlorotoluene	U	5.00	U 6.10	U 6.85	U 6.85	U 6.85
4-Chlorotoluene	U	5.00	U 6.10	U 6.85	U 6.85	U 6.85
tert-Butylbenzene	U	20.0	U 24.4	U 27.4	U 6.85	U 6.85
1,2,4-Trimethylbenzene	U	5.00	U 6.10	U 6.85	U 6.85	U 6.85
sec-Butylbenzene	U	20.0	U 24.4	U 27.4	U 6.85	U 6.85
p-Isopropyltoluene	U	20.0	U 24.4	U 27.4	U 6.85	U 6.85
1,3-Dichlorobenzene	U	5.00	U 6.10	U 6.85	U 6.85	U 6.85
1,4-Dichlorobenzene	U	5.00	U 6.10	U 6.85	U 6.85	U 6.85
n-Butylbenzene	U	20.0	U 24.4	U 27.4	U 6.85	U 6.85
1,2-Dichlorobenzene	U	5.00	U 6.10	U 6.85	U 6.85	U 6.85
1,2-Dibromo-3-Chloropropane	U	5.00	U 6.10	U 6.85	U 6.85	U 6.85
1,2,4-Trichlorobenzene	U	5.00	U 6.10	U 6.85	U 6.85	U 6.85
Hexachlorobutadiene	U	5.00	U 6.10	U 6.85	U 6.85	U 6.85
Naphthalene	U	20.0	U 24.4	U 27.4	U 6.85	U 6.85
1,2,3-Trichlorobenzene	U	5.00	U 6.10	U 6.85	U 6.85	U 6.85

Table 1.2 Results of the TICs for VOC in Soil
WA # 0-358 Public Works Site

Page 1 of 1

Sample Number	Analyte	Concentration*, µg/kg
Soil Blank B 093008-2	No TICs Detected	
00358-0001	No TICs Detected	
00358-0004	No TICs Detected	
00358-0005	No TICs Detected	
00358-0006	No TICs Detected	
00358-0008	No TICs Detected	
Soil Blank B 100108-2	No TICs Detected	
00358-0009	No TICs Detected	
00358-0007	No TICs Detected	
00358-0002	Unknown	11.4
00358-0003	Unknown	17.5

* Estimated Concentration

Table 1.3 Result of the Analysis for SVOC in Soil
WA # 0-358, Public Works Site
Results Based on Dry Weight

Page 1 of 3

Method: REAC SOP 1805

	Soil Blank 092908		00358-0008		00358-0001		00358-0002		00358-0003	
Sample Number			6		1		2		3	
Sample Location:			Surface		Surface		Surface		Surface	
Sub Location			80		71		77		74	
Percent Solids	100									
Analyte	Result ug/kg	RL ug/kg	Result ug/kg	RL ug/kg	Result ug/kg	RL ug/kg	Result ug/kg	RL ug/kg	Result ug/kg	RL ug/kg
Phenol	U	333	U	417	U	469	U	433	U	450
Bis-(2-chloroethyl) ether	U	333	U	417	U	469	U	433	U	450
2-Chlorophenol	U	333	U	417	U	469	U	433	U	450
1,3-Dichlorobenzene	U	333	U	417	U	469	U	433	U	450
1,4-Dichlorobenzene	U	333	U	417	U	469	U	433	U	450
Benzyl alcohol	U	333	U	417	U	469	U	433	U	450
1,2-Dichlorobenzene	U	333	U	417	U	469	U	433	U	450
2-Methylphenol	U	333	U	417	U	469	U	433	U	450
Bis-(2-chloroisopropyl) ether	U	333	U	417	U	469	U	433	U	450
4-Methylphenol	U	333	U	417	U	469	U	433	U	450
N-Nitroso-di-n-propylamine	U	333	U	417	U	469	U	433	U	450
Hexachloroethane	U	333	U	417	U	469	U	433	U	450
Nitrobenzene	U	333	U	417	U	469	U	433	U	450
Isophorone	U	333	U	417	U	469	U	433	U	450
2-Nitrophenol	U	333	U	417	U	469	U	433	U	450
2,4-Dimethylphenol	U	333	U	417	U	469	U	433	U	450
Bis-(2-chloroethoxy) methane	U	333	U	417	U	469	U	433	U	450
2,4-Dichlorophenol	U	333	U	417	U	469	U	433	U	450
1,2,4-Trichlorobenzene	U	333	U	417	U	469	U	433	U	450
Naphthalene	U	333	U	417	U	469	U	433	U	450
4-Chloroaniline	U	333	U	417	U	469	U	433	U	450
Hexachlorobutadiene	U	333	U	417	U	469	U	433	U	450
4-Chloro-3-methylphenol	U	333	U	417	U	469	U	433	U	450
2-Methylnaphthalene	U	333	U	417	U	469	U	433	U	450
Hexachlorocyclopentadiene	U	333	U	417	U	469	U	433	U	450
2,4,6-Trichlorophenol	U	333	U	417	U	469	U	433	U	450
2,4,5-Trichlorophenol	U	333	U	417	U	469	U	433	U	450
2-Chloronaphthalene	U	333	U	417	U	469	U	433	U	450
2-Nitroaniline	U	333	U	417	U	469	U	433	U	450
Dimethylphthalate	U	333	U	417	U	469	U	433	U	450
Acenaphthylene	U	333	U	417	U	469	U	433	U	450
2,6-Dinitrotoluene	U	333	U	417	U	469	U	433	U	450
3-Nitroaniline	U	333	U	417	U	469	U	433	U	450
Acenaphthene	U	333	U	417	U	469	U	433	U	450
2,4-Dinitrophenol	U	333	U	417	U	469	U	433	U	450
4-Nitrophenol	U	333	U	417	U	469	U	433	U	450
Dibenzofuran	U	333	U	417	U	469	U	433	U	450
2,4-Dinitrotoluene	U	333	U	417	U	469	U	433	U	450
Diethylphthalate	U	333	U	417	U	469	U	433	U	450
4-Chlorophenyl-phenylether	U	333	U	417	U	469	U	433	U	450
Fluorene	U	333	U	417	U	469	U	433	U	450
4-Nitroaniline	U	333	U	417	U	469	U	433	U	450
4,6-Dinitro-2-methylphenol	U	333	U	417	U	469	U	433	U	450
N-Nitrosodiphenylamine	U	333	U	417	U	469	U	433	U	450
4-Bromophenyl-phenylether	U	333	U	417	U	469	U	433	U	450
Hexachlorobenzene	U	333	U	417	U	469	U	433	U	450
Pentachlorophenol	U	333	U	417	U	469	U	433	U	450
Phenanthrene	U	333	U	417	U	469	U	433	U	450
Anthracene	U	333	U	417	U	469	U	433	U	450
Carbazole	U	333	U	417	U	469	U	433	U	450
Di-n-butylphthalate	U	333	U	417	U	469	U	433	U	450
Fluoranthene	U	333	U	417	U	469	U	433	U	450
Pyrene	U	333	U	417	U	469	U	433	U	450
Butylbenzylphthalate	U	333	162 J	417	411 J	469	U	433	449 J	450
Benzo(a)anthracene	U	333	U	417	U	469	U	433	U	450
3,3'-Dichlorobenzidine	U	333	U	417	U	469	U	433	U	450
Chrysene	U	333	U	417	U	469	U	433	U	450
Bis-(2-ethylhexyl) phthalate	U	333	463	417	118 J	469	U	433	148 J	450
Di-n-octylphthalate	U	333	U	417	U	469	U	433	U	450
Benzo(b)fluoranthene	U	333	U	417	U	469	U	433	U	450
Benzo(k)fluoranthene	U	333	U	417	U	469	U	433	U	450
Benzo(a)pyrene	U	333	U	417	U	469	U	433	U	450
Indeno(1,2,3-cd)pyrene	U	333	U	417	U	469	U	433	U	450
Dibenzo(a,h)anthracene	U	333	U	417	U	469	U	433	U	450
Benzo(g,h,i)perylene	U	333	U	417	U	469	U	433	U	450

Table 1.3 (cont) Result of the Analysis for SVOC in Soil
WA # 0-358, Public Works Site
Results Based on Dry Weight

Page 2 of 3

Method: REAC SOP 1805

Sample Number	Soil Blank 092908	00358-0004	00358-0007	00358-0009
Sample Location:		3	5	7
Sub Location		Subsurface	Surface	Surface
Percent Solids	100	77	73	82

Analyte	Result µg/kg	RL µg/kg	Result µg/kg	RL µg/kg	Result µg/kg	RL µg/kg	Result µg/kg	RL µg/kg
Phenol	U	333	U	433	U	457	U	407
Bis-(2-chloroethyl) ether	U	333	U	433	U	457	U	407
2-Chlorophenol	U	333	U	433	U	457	U	407
1,3-Dichlorobenzene	U	333	U	433	U	457	U	407
1,4-Dichlorobenzene	U	333	U	433	U	457	U	407
Benzyl alcohol	U	333	U	433	U	457	U	407
1,2-Dichlorobenzene	U	333	U	433	U	457	U	407
2-Methylphenol	U	333	U	433	U	457	U	407
Bis-(2-chloroisopropyl) ether	U	333	U	433	U	457	U	407
4-Methylphenol	U	333	U	433	U	457	U	407
N-Nitroso-di-n-propylamine	U	333	U	433	U	457	U	407
Hexachloroethane	U	333	U	433	U	457	U	407
Nitrobenzene	U	333	U	433	U	457	U	407
Isophorone	U	333	U	433	U	457	U	407
2-Nitrophenol	U	333	U	433	U	457	U	407
2,4-Dimethylphenol	U	333	U	433	U	457	U	407
Bis-(2-chloroethoxy) methane	U	333	U	433	U	457	U	407
2,4-Dichlorophenol	U	333	U	433	U	457	U	407
1,2,4-Trichlorobenzene	U	333	U	433	U	457	U	407
Naphthalene	U	333	U	433	U	457	U	407
4-Chloroaniline	U	333	U	433	U	457	U	407
Hexachlorobutadiene	U	333	U	433	U	457	U	407
4-Chloro-3-methylphenol	U	333	U	433	U	457	U	407
2-Methylnaphthalene	U	333	U	433	U	457	U	407
Hexachlorocyclopentadiene	U	333	U	433	U	457	U	407
2,4,6-Trichlorophenol	U	333	U	433	U	457	U	407
2,4,5-Trichlorophenol	U	333	U	433	U	457	U	407
2-Chloronaphthalene	U	333	U	433	U	457	U	407
2-Nitroaniline	U	333	U	433	U	457	U	407
Dimethylphthalate	U	333	U	433	U	457	U	407
Acenaphthylene	U	333	U	433	U	457	U	407
2,6-Dinitrotoluene	U	333	U	433	U	457	U	407
3-Nitroaniline	U	333	U	433	U	457	U	407
Acenaphthene	U	333	U	433	U	457	U	407
2,4-Dinitrophenol	U	333	U	433	U	457	U	407
4-Nitrophenol	U	333	U	433	U	457	U	407
Dibenzofuran	U	333	U	433	U	457	U	407
2,4-Dinitrotoluene	U	333	U	433	U	457	U	407
Diethylphthalate	U	333	U	433	U	457	U	407
4-Chlorophenyl-phenylether	U	333	U	433	U	457	U	407
Fluorene	U	333	U	433	U	457	U	407
4-Nitroaniline	U	333	U	433	U	457	U	407
4,6-Dinitro-2-methylphenol	U	333	U	433	U	457	U	407
N-Nitrosodiphenylamine	U	333	U	433	U	457	U	407
4-Bromophenyl-phenylether	U	333	U	433	U	457	U	407
Hexachlorobenzene	U	333	U	433	U	457	U	407
Pentachlorophenol	U	333	U J	433	U J	457	U J	407
Phenanthrene	U	333	U	433	U	457	U	407
Anthracene	U	333	U	433	U	457	U	407
Carbazole	U	333	U	433	U	457	U	407
Di-n-butylphthalate	U	333	182 J	433	167 J	457	U	407
Fluoranthene	U	333	U	433	U	457	U	407
Pyrene	U	333	U	433	U	457	U	407
Butylbenzylphthalate	U	333	1370	433	U	457	179 J	407
Benzo(a)anthracene	U	333	U	433	U	457	U	407
3,3'-Dichlorobenzidine	U	333	U	433	U	457	U	407
Chrysene	U	333	U	433	U	457	U	407
Bis-(2-ethylhexyl) phthalate	U	333	212 J	433	U	457	204 J	407
Di-n-octylphthalate	U	333	U	433	U	457	U	407
Benzo(b)fluoranthene	U	333	U	433	U	457	U	407
Benzo(k)fluoranthene	U	333	U	433	U	457	U	407
Benzo(a)pyrene	U	333	U	433	U	457	U	407
Indeno(1,2,3-cd)pyrene	U	333	U	433	U	457	U	407
Dibenzo(a,h)anthracene	U	333	U	433	U	457	U	407
Benzo(g,h,i)perylene	U	333	U	433	U	457	U	407

Table 1.3 (cont) Result of the Analysis for SVOC in Soil
WA # 0-358, Public Works Site
Results Based on Dry Weight

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Method: REAC SOP 1805

Sample Number	Soil Blank 092908	00358-0006	00358-0005
Sample Location:	(post GPC)	4	4
Sub Location		Subsurface	Surface
Percent Solids	100	66	71

Analyte	Result µg/kg	RL µg/kg	Result µg/kg	RL µg/kg	Result µg/kg	RL µg/kg
Phenol	U	333	U	1940	U	2350
Bis-(2-chloroethyl) ether	U	333	U	1940	U	2350
2-Chlorophenol	U	333	U	1940	U	2350
1,3-Dichlorobenzene	U	333	U	1940	U	2350
1,4-Dichlorobenzene	U	333	U	1940	U	2350
Benzyl alcohol	U	333	U	1940	U	2350
1,2-Dichlorobenzene	U	333	U	1940	U	2350
2-Methylphenol	U	333	U	1940	U	2350
Bis-(2-chloroisopropyl) ether	U	333	U	1940	U	2350
4-Methylphenol	U	333	U	1940	U	2350
N-Nitroso-di-n-propylamine	U	333	U	1940	U	2350
Hexachloroethane	U	333	U	1940	U	2350
Nitrobenzene	U	333	U	1940	U	2350
Isophorone	U	333	U	1940	U	2350
2-Nitrophenol	U	333	U	1940	U	2350
2,4-Dimethylphenol	U	333	U	1940	U	2350
Bis-(2-chloroethoxy) methane	U	333	U	1940	U	2350
2,4-Dichlorophenol	U	333	U	1940	U	2350
1,2,4-Trichlorobenzene	U	333	U	1940	U	2350
Naphthalene	U	333	U	1940	U	2350
4-Chloroaniline	U	333	U	1940	U	2350
Hexachlorobutadiene	U	333	U	1940	U	2350
4-Chloro-3-methylphenol	U	333	U	1940	U	2350
2-Methylnaphthalene	U	333	U	1940	U	2350
Hexachlorocyclopentadiene	U	333	U	1940	U	2350
2,4,6-Trichlorophenol	U	333	U	1940	U	2350
2,4,5-Trichlorophenol	U	333	U	1940	U	2350
2-Chloronaphthalene	U	333	U	1940	U	2350
2-Nitroaniline	U	333	U	1940	U	2350
Dimethylphthalate	U	333	U	1940	U	2350
Acenaphthylene	U	333	U	1940	U	2350
2,6-Dinitrotoluene	U	333	U	1940	U	2350
3-Nitroaniline	U	333	U	1940	U	2350
Acenaphthene	U	333	U	1940	U	2350
2,4-Dinitrophenol	U	333	U	1940	U	2350
4-Nitrophenol	U	333	U	1940	U	2350
Dibenzofuran	U	333	U	1940	U	2350
2,4-Dinitrotoluene	U	333	U	1940	U	2350
Diethylphthalate	U	333	U	1940	U	2350
4-Chlorophenyl-phenylether	U	333	U	1940	U	2350
Fluorene	U	333	U	1940	U	2350
4-Nitroaniline	U	333	U	1940	U	2350
4,6-Dinitro-2-methylphenol	U	333	U	1940	U	2350
N-Nitrosodiphenylamine	U	333	U	1940	U	2350
4-Bromophenyl-phenylether	U	333	U	1940	U	2350
Hexachlorobenzene	U	333	U	1940	U	2350
Pentachlorophenol	U	333	U	1940	U	2350
Phenanthrene	U	333	U	1940	U	2350
Anthracene	U	333	U	1940	U	2350
Carbazole	U	333	U	1940	U	2350
Di-n-butylphthalate	U	333	U	1940	U	2350
Fluoranthene	U	333	U	1940	U	2350
Pyrene	U	333	U	1940	U	2350
Butylbenzylphthalate	U	333	U	1940	U	2350
Benzo(a)anthracene	U	333	U	1940	U	2350
3,3'-Dichlorobenzidine	U	333	U	1940	U	2350
Chrysene	U	333	U	1940	U	2350
Bis-(2-ethylhexyl) phthalate	U	333	U	1940	U	2350
Di-n-octylphthalate	U	333	U	1940	U	2350
Benzo(b)fluoranthene	U	333	U	1940	U	2350
Benzo(k)fluoranthene	U	333	U	1940	U	2350
Benzo(a)pyrene	U	333	U	1940	U	2350
Indeno(1,2,3-cd)pyrene	U	333	U	1940	U	2350
Dibenzo(a,h)anthracene	U	333	U	1940	U	2350
Benzo(g,h,i)perylene	U	333	U	1940	U	2350

Table 1.4 Results of the TICs for SVOC in Soil
WA# 358, Public Works Site

Page 1 of 1

Sample Number	Analyte	Concentration*, µg/kg
Soil Blank 092908 000358-0007	No TICs Detected No TICs Detected	
Soil Blank 092908 (Post GPC) 000358-0006 000358-0005	No TICs Detected No TICs Detected No TICs Detected	
00358-0008	1,4-Benzenediamine, N,N-dimethyl- Unknown Unknown Unknown Unknown Unknown	524 365 897 640 1050 395
00358-0001	C7 Alcohol 1,4-Benzenediamine, N,N-dimethyl- Organic acid Organic acid Organic acid Unknown C21 Ketone Alkane Alkane Stigmast-4-en-3-one	787 494 697 1550 508 530 581 589 490 2190
00358-0002	1,4-Benzenediamine, N,N-dimethyl- Organic acid Alkane Pyrrolidine, 1-(1-oxooctadecyl)- Alkane Stigmast-4-en-3-one	522 841 477 1140 542 1830
00358-0003	C12 Alcohol Organic acid Organic acid Androst-4-en-3-one, 17-hydroxy-, (17.bet	1050 2060 787 2100
00358-0004	1,4-Benzenediamine, N,N-dimethyl- Alkane Alkane C20 Alkane C21 Alkane	577 957 635 597 1470
000358-0007	1,4-Benzenediamine, N,N-dimethyl- Organic Acid Organic Acid	877 1320 846
000358-0009	Organic acid	426

Table 1.5 Results of the Analysis for Pesticide/PCB in Soil
WA# 0-358 Public Works Site
Results Based on Dry Weight

Page 1 of 1

Method: REAC SOP 1801&1809

Sample Number	SBLK093008		00358-0001		00358-0002		00358-0003		00358-0004	
Location	-		1		2		3		3	
Sub Location			Surface		Surface		Surface		Subsurface	
Percent Solids	100		71		77		74		77	
Analyte	Conc. µg/kg	RL µg/kg	Conc. µg/kg	RL µg/kg	Conc. µg/kg	RL µg/kg	Conc. µg/kg	RL µg/kg	Conc. µg/kg	RL µg/kg
a-BHC	U	3.33	U	4.69	U	4.33	U	4.50	U	4.33
g-BHC	U	3.33	U	4.69	U	4.33	U	4.50	U	4.33
b-BHC	U	3.33	U	4.69	U	4.33	U	4.50	U	4.33
d-BHC	U	3.33	U	4.69	U	4.33	U	4.50	U	4.33
Heptachlor	U	3.33	U	4.69	U	4.33	U	4.50	U	4.33
Aldrin	U	3.33	U	4.69	U	4.33	U	4.50	U	4.33
Heptachlor Epoxide	U	3.33	U	4.69	U	4.33	U	4.50	U	4.33
g-Chlorodane	U	3.33	U	4.69	U	4.33	U	4.50	U	4.33
a-Chlorodane	U	3.33	U	4.69	U	4.33	U	4.50	U	4.33
Endosulfan (I)	U	3.33	U	4.69	U	4.33	U	4.50	U	4.33
p,p'-D D E	U	3.33	U	4.69	4.93	4.33	1.66 J	4.50	12.9	4.33
Dieldrin	U	3.33	U	4.69	U	4.33	U	4.50	U	4.33
Endrin	U	3.33	U	4.69	U	4.33	U	4.50	U	4.33
p,p'-D D D	U	3.33	U	4.69	U	4.33	U	4.50	2.63 J	4.33
Endosulfan (II)	U	3.33	U	4.69	U	4.33	U	4.50	U	4.33
Endrin Aldehyde	U	3.33	U	4.69	U	4.33	U	4.50	U	4.33
p,p'-D D T	U	3.33	U	4.69	6.32 J	8.66	4.34 J	9.01	29.8 J	8.66
Endosulfan Sulfate	U	3.33	U	4.69	U	4.33	U	4.50	U	4.33
Methoxychlor	U	3.33	U	4.69	U	4.33	U	4.50	U	4.33
Endrin Ketone	U	3.33	U	4.69	U	4.33	U	4.50	U	4.33
Toxaphene	U	83.3	U	117	U	108	U	113	U	108
Aroclor 1016	U	41.7	U	58.7	U	54.1	U	58.3	U	54.1
Aroclor 1221	U	83.3	U	117	U	108	U	113	U	108
Aroclor 1232	U	41.7	U	58.7	U	54.1	U	56.3	U	54.1
Aroclor 1242	U	41.7	U	58.7	U	54.1	U	56.3	U	54.1
Aroclor 1248	U	41.7	U	58.7	U	54.1	U	56.3	U	54.1
Aroclor 1254	U	41.7	U	58.7	U	54.1	U	56.3	U	54.1
Aroclor 1260	U	41.7	26.0 J	58.7	42.6 J	54.1	70.4	56.3	99.6	54.1
Aroclor 1268	U	41.7	U	58.7	U	54.1	U	56.3	U	54.1

Table 1.5 (cont.) Results of the Analysis for Pesticide/PCB In Soil
WA# 0-358 Public Works Site
Based on Dry Weight

Method: REAC SOP 1801&1809

Sample Number	00358-0005		00358-0006		00358-0007		00358-0008		00358-0009	
Location	4		4		5		5		7	
Sub Location	Surface		Subsurface		Surface		Surface		Surface	
Percent Solid	71		86		73		80		82	
Analyte	Conc. µg/kg	RL µg/kg	Conc. µg/kg	RL µg/kg	Conc. µg/kg	RL µg/kg	Conc. µg/kg	RL µg/kg	Conc. µg/kg	RL µg/kg
a-BHC	U	4.69	U	3.88	U	4.57	U	4.17	U	4.07
g-BHC	U	4.69	U	3.88	U	4.57	U	4.17	U	4.07
b-BHC	U	4.69	U	3.88	U	4.57	U	4.17	U	4.07
d-BHC	U	4.69	U	3.88	U	4.57	U	4.17	U	4.07
Heptachlor	U	4.69	U	3.88	U	4.57	U	4.17	U	4.07
Aldrin	U	4.69	U	3.88	U	4.57	U	4.17	U	4.07
Heptachlor Epoxide	U	4.69	1.43 J	3.88	U	4.57	U	4.17	U	4.07
g-Chlorodane	U	4.69	U	3.88	U	4.57	U	4.17	U	4.07
a-Chlorodane	U	4.69	U	3.88	U	4.57	U	4.17	U	4.07
Endosulfan (I)	U	4.69	U	3.88	U	4.57	U	4.17	U	4.07
p,p'-D D E	3.17 J	4.69	2.76 J	3.88	4.21 J	4.57	18.4	4.17	25.0	4.07
Dieldrin	4.72	4.69	10.4	3.88	U	4.57	U	4.17	1.79 J	4.07
Endrin	U	4.69	U	3.88	U	4.57	U	4.17	U	4.07
p,p'-D D D	U	4.69	2.01 J	3.88	U	4.57	U	4.17	2.43 J	4.07
Endosulfan (II)	U	4.69	U	3.88	U	4.57	U	4.17	U	4.07
Endrin Aldehyde	U	4.69	U	3.88	U	4.57	U	4.17	U	4.07
p,p'-D D T	8.99 J	9.39	6.69 J	7.75	U	4.57	15.2	4.17	8.83 J	8.13
Endosulfan Sulfate	U	4.69	U	3.88	U	4.57	U	4.17	U	4.07
Methoxychlor	U	4.69	U	3.88	U	4.57	U	4.17	U	4.07
Endrin Ketone	U	4.69	U	3.88	U	4.57	U	4.17	U	4.07
Toxaphene	U	117	U	96.9	U	114	U	104	U	102
Aroclor 1016	U	58.7	U	48.4	U	57.1	U	52.1	U	50.8
Aroclor 1221	U	117	U	96.9	U	114	U	104	U	102
Aroclor 1232	U	58.7	U	48.4	U	57.1	U	52.1	U	50.8
Aroclor 1242	U	58.7	U	48.4	U	57.1	U	52.1	U	50.8
Aroclor 1248	U	58.7	U	48.4	U	57.1	U	52.1	U	50.8
Aroclor 1254	U	58.7	U	48.4	U	57.1	U	52.1	U	50.8
Aroclor 1260	79.7	58.7	54.0	48.4	133	57.1	84.1	52.1	52.0	50.8
Aroclor 1268	U	58.7	U	48.4	U	57.1	U	52.1	U	50.8

Table 1.6 Results of the Analysis for Metals in Soil
WA # 0-358 Public Works Site
Results Based on Dry Weight

Page 1 of 1

Method REAC SOP 1811/1832

Sample No.	Method Blank-092908	00358-0001	00358-0002	00358-0003	00358-0004	00358-0005
Location	Lab	1	2	3	3	4
Sub Location		Surface	Surface	Surface	Subsurface	Surface
Percent Solids	NA	71	77	74	77	71
Analyte	Result mg/kg	RL mg/kg	Result mg/kg	RL mg/kg	Result mg/kg	RL mg/kg
Aluminum	U 20.0	11400 17.3	12500 17.9	10700 18.1	12100 18.0	10800 16.5
Antimony	U 1.40	U 6.05	U 1.25	U 6.35	U 1.26	U 1.15
Arsenic	U 1.50	6.96 1.30	3.42 1.34	3.20 1.36	4.49 1.35	3.41 1.24
Barium	U 0.400	97.9 J+ 0.346	57.3 J+ 0.358	65.4 J+ 0.363	89.1 J+ 0.361	65.9 J+ 0.329
Beryllium	U 0.300	0.278 U 0.259	U 0.269	U 0.272	U 0.271	U 0.247
Cadmium	U 0.400	U 0.346	0.558 0.358	0.497 0.363	1.09 0.361	0.569 0.329
Calcium	U 9.90	49000 8.55	83500 8.87	58900 8.98	87300 8.93	89500 40.8
Chromium	U 0.500	527 0.432	547 0.448	661 0.453	548 0.451	557 0.412
Cobalt	U 0.400	42.9 0.346	39.6 0.358	47.7 0.363	49.0 0.361	57.0 0.329
Copper	U 0.400	37.8 0.346	45.1 0.358	31.7 0.363	36.4 0.361	31.6 0.329
Iron	U 15.0	41700 64.8	36100 67.2	41700 68.0	52900 67.6	39400 61.8
Lead	U 1.00	13.1 J+ 0.864	26.8 J+ 0.896	36.8 J+ 0.907	243 J+ 0.902	30.4 J+ 0.824
Magnesium	U 20.0	82800 86.4	69300 89.6	84400 90.7	83200 90.2	94700 82.4
Manganese	U 0.400	879 0.346	571 0.358	591 0.363	654 0.361	647 0.329
Mercury	U 0.0400	0.0656 0.0402	0.0567 0.0382	0.0452 0.0375	0.119 0.0366	0.0795 0.0414
Nickel	U 0.600	759 0.518	683 0.537	842 0.544	829 0.541	937 0.494
Potassium	U 25.0	839 J 21.6	1240 J 22.4	1030 J 22.7	891 J 22.5	743 J 20.6
Selenium	U 1.30	U 1.12	U 1.16	U 1.18	U 1.17	U 1.07
Silver	U 0.500	U 0.432	U 0.448	U 0.453	U 0.451	U 0.412
Sodium	U 100	167 86.4	187 89.6	172 90.7	205 90.2	195 82.4
Thallium	U 1.80	2.06 1.56	U 1.61	1.79 1.63	2.09 1.62	U 1.48
Vanadium	U 0.400	66.5 J- 0.346	65.0 J- 0.358	57.8 J- 0.363	60.3 J- 0.361	60.6 J- 0.329
Zinc	U 3.10	86.1 J+ 2.68	126 J+ 2.78	153 J+ 2.81	208 J+ 2.80	128 J+ 2.55

Table 1.6 Results of the Analysis for Metals in Soil
WA # 0-358 Public Works Site
Results Based on Dry Weight

Method REAC SOP 1811/1832

Sample No.	00358-0006	00358-0007	00358-0008	00358-0009
Location	4	5	6	7
Sub Location	Subsurface	Surface	Surface	Surface
Percent Solids	85	73	80	82
Analyte	Result mg/kg	RL mg/kg	Result mg/kg	RL mg/kg
Aluminum	8330 18.0	10500 18.5	13000 18.2	14900 18.8
Antimony	U 1.12	U 6.48	U 5.68	U 6.57
Arsenic	2.78 1.20	2.99 1.39	3.14 1.22	3.57 1.41
Barium	80.8 J+ 0.321	47.9 J+ 0.370	59.7 J+ 0.325	74.1 J+ 0.375
Beryllium	U 0.241	U 0.278	U 0.244	U 0.281
Cadmium	0.325 0.321	0.396 0.370	0.458 0.325	0.602 0.375
Calcium	117000 39.7	65500 9.16	67800 8.04	82400 9.29
Chromium	298 0.401	727 0.463	563 0.406	527 0.469
Cobalt	26.9 0.321	58.5 0.370	47.1 0.325	45.8 0.375
Copper	25.9 0.321	30.4 0.370	34.5 0.325	40.4 0.375
Iron	27200 60.1	41900 69.4	40700 60.9	39000 69.8
Lead	10.3 J+ 0.802	19.7 J+ 0.926	53.2 J+ 0.812	28.9 J+ 0.838
Magnesium	53300 80.2	103000 92.6	89200 81.2	67600 93.1
Manganese	540 0.321	635 0.370	603 0.325	609 0.375
Mercury	0.0359 0.0323	0.0489 0.0370	0.121 0.0357	0.153 0.0339
Nickel	447 0.481	1060 0.555	788 0.487	707 J 0.583
Potassium	587 J 20.0	800 J 23.1	1190 J 20.3	1240 J 23.5
Selenium	U 1.04	U 1.20	U 1.06	U 1.22
Silver	U 0.401	0.580 0.463	U 0.406	U 0.469
Sodium	176 80.2	165 92.8	226 81.2	160 93.8
Thallium	U 1.44	U 1.67	1.50 1.45	U 1.69
Vanadium	63.4 J- 0.321	61.4 J- 0.370	64.3 J- 0.325	74.3 J- 0.375
Zinc	72.0 J+ 2.49	80.3 J+ 2.87	122 J+ 2.52	114 J+ 2.91

Table 2.1 Results of the MS/MSD Analysis for VOC in Soil
WA# 0-358 Public Works Site
Results Based on Dry Weight

Page 1 of 1

Sample No. : 00358-0001

Analyte	Sample Conc. µg/kg	MS/MSD Spike Added µg/kg	MS Conc. µg/kg	MS % Recovery	MSD Conc. µg/kg	MSD % Recovery	RPD	QC Limits	
								RPD	% Recovery
1,1-Dichloroethene	U	70.4	72.9	104	78.2	111	7	22	59 - 172
Benzene	U	70.4	65.8	93	73.5	104	11	21	66 - 142
Trichloroethene	U	70.4	59.6	85	65.5	93	9	24	62 - 137
Toluene	U	70.4	64.0	91	77.8	111	19	21	59 - 139
Chlorobenzene	U	70.4	55.0	78	66.7	95	19	21	60 - 133

Table 2.2 Results of LCS Analysis for VOC in Soil
WA# 0-358 Public Works Site

Sample ID: LCS BS093008-1

Page 1 of 1

Analyte	LCS Spike Added µg/Kg	LCS Conc. µg/Kg	LCS % Recovery	QC Limits % Recovery
Dichlorodifluoromethane	50.0	30.3	61	* 70 - 130
Chloromethane	50.0	39.8	80	70 - 130
Vinyl Chloride	50.0	62.3	125	70 - 130
Bromomethane	50.0	53.2	106	70 - 130
Chloroethane	50.0	49.3	99	70 - 130
Trichlorofluoromethane	50.0	52.2	104	70 - 130
Acetone	50.0	71.3	143	* 70 - 130
1,1-Dichloroethene	50.0	51.8	104	70 - 130
Methylene Chloride	50.0	50.5	101	70 - 130
Carbon Disulfide	50.0	43.2	86	70 - 130
Methyl-t-butyl Ether	50.0	40.9	82	70 - 130
trans-1,2-Dichloroethene	50.0	51.1	102	70 - 130
1,1-Dichloroethane	50.0	52.8	106	70 - 130
2-Butanone	50.0	52.1	104	70 - 130
2,2-Dichloropropane	50.0	48.6	97	70 - 130
cis-1,2-Dichloroethene	50.0	50.9	102	70 - 130
Chloroform	50.0	52.7	105	70 - 130
1,1-Dichloropropene	50.0	50.2	100	70 - 130
1,2-Dichloroethane	50.0	50.1	100	70 - 130
1,1,1-Trichloroethane	50.0	48.6	97	70 - 130
Carbon Tetrachloride	50.0	49.7	99	70 - 130
Benzene	50.0	49.9	100	70 - 130
Trichloroethene	50.0	46.7	93	70 - 130
1,2-Dichloropropane	50.0	46.2	92	70 - 130
Bromodichloromethane	50.0	45.9	92	70 - 130
Dibromomethane	50.0	46.4	93	70 - 130
cis-1,3-Dichloropropene	50.0	45.0	90	70 - 130
trans-1,3-Dichloropropene	50.0	49.5	99	70 - 130
1,1,2-Trichloroethane	50.0	45.7	91	70 - 130
1,3-Dichloropropene	50.0	45.5	91	70 - 130
Dibromochloromethane	50.0	46.7	93	70 - 130
1,2-Dibromoethane	50.0	43.8	88	70 - 130
Bromoform	50.0	47.7	95	70 - 130
4-Methyl-2-Pentanone	50.0	34.8	70	70 - 130
Toluene	50.0	48.7	97	70 - 130
2-Hexanone	50.0	44.7	89	70 - 130
Tetrachloroethene	50.0	45.7	91	70 - 130
Chlorobenzene	50.0	47.2	94	70 - 130
1,1,1,2-Tetrachloroethane	50.0	48.0	96	70 - 130
Ethylbenzene	50.0	49.0	98	70 - 130
p&m-Xylene	100.0	96.6	97	70 - 130
o-Xylene	50.0	48.0	96	70 - 130
Styrene	50.0	48.0	96	70 - 130
Isopropylbenzene	50.0	50.2	100	70 - 130
1,1,2,2-Tetrachloroethane	50.0	44.1	88	70 - 130
1,2,3-Trichloropropane	50.0	43.6	87	70 - 130
n-Propylbenzene	50.0	48.3	97	70 - 130
Bromobenzene	50.0	46.2	92	70 - 130
1,3,5-Trimethylbenzene	50.0	49.7	99	70 - 130
2-Chlorotoluene	50.0	48.6	97	70 - 130
4-Chlorotoluene	50.0	49.4	99	70 - 130
tert-Butylbenzene	50.0	47.9	96	70 - 130
1,2,4-Trimethylbenzene	50.0	47.5	95	70 - 130
sec-Butylbenzene	50.0	47.1	94	70 - 130
p-Isopropyltoluene	50.0	46.5	93	70 - 130
1,3-Dichlorobenzene	50.0	45.9	92	70 - 130
1,4-Dichlorobenzene	50.0	45.9	92	70 - 130
n-Butylbenzene	50.0	44.6	89	70 - 130
1,2-Dichlorobenzene	50.0	46.6	93	70 - 130
1,2-Dibromo-3-chloropropane	50.0	40.6	81	70 - 130
1,2,4-Trichlorobenzene	50.0	41.1	82	70 - 130
Hexachlorobutadiene	50.0	43.1	86	70 - 130
Naphthalene	50.0	37.2	74	70 - 130
1,2,3-Trichlorobenzene	50.0	41.4	83	70 - 130

* Indicates out of the criteria

Table 2.3 Results of the MS/MSD Analysis for SVOC in Soil
WA# 358 Public Works Site
Results Based on Dry Weight

Page 1 of 1

Sample ID: 00358-0008

Analyte	Sample Conc. µg/kg	MS/MSD Spike Added µg/kg	MS Conc. µg/kg	MS % Recovery	MSD Conc. µg/kg	MSD % Recovery	RPD	QC Limits	
								RPD	% Recovery
Phenol	U	4170	3050	73	3020	72	1	35	26 - 90
2-Chlorophenol	U	4170	2940	71	2900	70	1	50	25 - 102
1,4-Dichlorobenzene	U	2080	1190	57	1160	56	2	27	28 - 104
N-Nitroso-di-n-propylami	U	2080	1460	70	1450	70	0	38	41 - 126
1,2,4-Trichlorobenzene	U	2080	1330	64	1290	62	3	23	38 - 107
4-Chloro-3-methylpheno	U	4170	3340	80	3310	79	1	33	26 - 103
Acenaphthene	U	2080	1670	80	1630	78	3	19	31 - 137
4-Nitrophenol	U	4170	3790	91	3630	87	4	50	11 - 114
2,4-Dinitrotoluene	U	2080	1630	78	1540	74	5	47	28 - 89
Pentachlorophenol	U	4170	1140	27	1000	24	12	47	17 - 109
Pyrene	U	2080	1810	87	1770	85	2	36	35 - 142

Table 2.4 Results of the LCS Analysis for SVOC in Soil
WA# 0-358 Public Works Site

Sample ID: SLCS-BS 50

Page 1 of 1

Analyte	LCS Spike Added µg/kg	LCS Conc. µg/kg	LCS % Recovery	QC Limits % Recovery
Phenol	3330	2600	78	70 - 130
2-Chlorophenol	3330	2590	78	70 - 130
1,4-Dichlorobenzene	1670	1210	72	70 - 130
N-Nitroso-di-n-propylamine	1670	1240	74	70 - 130
1,2,4-Trichlorobenzene	1670	1240	74	70 - 130
4-Chloro-3-methylphenol	3330	2550	77	70 - 130
Acenaphthene	1670	1410	84	70 - 130
4-Nitrophenol	3330	2830	85	70 - 130
2,4-Dinitrotoluene	1670	1290	77	70 - 130
Pentachlorophenol	3330	1770	53	* 70 - 130
Pyrene	1670	1320	79	70 - 130

Table 2.5 Results of the MS/MSD Analysis for Pesticide/PCB in Soil
WA# 358 Public Works Site
Results Based on Dry Weight

Page 1 of 1

Sample ID: 000358-0008

Analyte	Sample Conc. µg/kg	MS/MSD Spike Added µg/kg	MS Conc. µg/kg	MS % Recovery	MSD Conc. µg/kg	MSD % Recovery	RPD	QC Limits	
								% Recovery	RPD
g-BHC	U	26.0	20.9	80	20.9	80	0	46 - 127	50
Heptachlor	U	26.0	22.4	86	22.5	86	0	35 - 130	31
Aldrin	U	26.0	21.5	83	21.1	81	2	34 - 132	43
Dieldrin	U	52.1	48.1	92	48.4	93	1	31 - 134	38
Endrin	U	52.1	56.0	108	55.1	106	2	42 - 139	45
p,p'-DDT	15.2	52.1	64.4	95	68.3	102	8	23 - 134	50

Table 2.6 Results of the LCS Analysis for Pesticide/PCB in Soil
WA# 358 Public Works Site

Page 1 of 1

Sample ID: SLCS-PSF60

Date Analyzed: 10/02/08

Analyte	LCS Spike Added µg/kg	LCS Conc µg/kg	LCS % Recovery	QC Limits % Recovery
a-BHC	16.7	14.6	88	70 - 130
g-BHC	16.7	14.5	87	70 - 130
b-BHC	16.7	14.4	86	70 - 130
d-BHC	16.7	14.4	86	70 - 130
Heptachlor	16.7	13.2	79	70 - 130
Aldrin	16.7	14.0	84	70 - 130
Heptachlor Epoxide	16.7	16.4	98	70 - 130
g-Chlorodane	16.7	16.0	96	70 - 130
a-Chlorodane	16.7	15.4	92	70 - 130
Endosulfan (I)	16.7	14.7	88	70 - 130
p,p'-D D E	16.7	16.3	98	70 - 130
Dieldrin	16.7	16.0	96	70 - 130
Endrin	16.7	16.4	98	70 - 130
p,p'-D D D	16.7	16.2	97	70 - 130
Endosulfan (II)	16.7	15.7	94	70 - 130
Endrin Aldehyde	16.7	15.0	90	70 - 130
p,p'-D D T	16.7	16.3	98	70 - 130
Endosulfan Sulfate	16.7	16.6	100	70 - 130
Methoxychlor	16.7	16.5	99	70 - 130
Endrin Ketone	16.7	17.5	105	70 - 130

Table 2.7 Results of the MS/MSD Analysis for Metals in Soil
WA # 0-358 Public Works Site
Results Based on Dry Weight

Page 1 of 1

Sample No.00358-0009

Analyte	Sample Result mg/kg	MS Spike Added mg/kg	MS Result mg/kg	MS % Recovery	MSD Spike Added mg/kg	MSD Result mg/kg	MSD % Recovery	RPD	Recommended QC Limits	
									RPD	% Recovery
Aluminum	14900	188	13700	NC	186	13200	NC	4	20	75 - 125
Antimony	U	37.5	2.44	7	37.2	2.12	6	14	20	0 100
Arsenic	3.57	37.5	39.3	95	37.2	37.9	92	4	20	75 - 125
Barium	74.1	37.5	136	165	37.2	117	115	15	20	75 - 125
Beryllium	U	37.5	35.4	94	37.2	34.0	91	4	20	75 - 125
Cadmium	0.602	37.5	34.9	91	37.2	33.2	88	5	20	75 - 125
Calcium	82400	188	75300	NC	186	82200	NC	9	20	75 - 125
Chromium	527	37.5	532	NC	37.2	483	NC	10	20	75 - 125
Cobalt	45.8	37.5	82.4	98	37.2	73.8	75	11	20	75 - 125
Copper	40.4	37.5	74.8	92	37.2	70.4	81	6	20	75 - 125
Iron	39000	188	42200	NC	186	38400	NC	9	20	75 - 125
Lead	28.9	37.5	97.4	183	37.2	72.4	117	29	20	75 - 125
Magnesium	67600	188	76900	NC	186	66000	NC	15	20	75 - 125
Manganese	609	37.5	691	NC	37.2	610	NC	12	20	75 - 125
Mercury	0.153	0.334	0.439	86	0.325	0.418	82	5	20	75 - 125
Nickel	707	37.5	816	NC	37.2	655	NC	22	20	75 - 125
Potassium	1240	188	1200	NC	186	1150	NC	4	20	75 - 125
Selenium	U	18.8	17.6	94	18.6	17.0	91	3	20	75 - 125
Silver	U	37.5	36.9	98	37.2	35.3	95	4	20	75 - 125
Sodium	160	750	924	102	745	908	100	2	20	75 - 125
Thallium	U	18.8	16.3	87	18.6	15.5	83	5	20	75 - 125
Vanadium	74.3	37.5	113	103	37.2	101	72	11	20	75 - 125
Zinc	114	37.5	173	157	37.2	171	153	1	20	75 - 125

Table 2.8 Results of the LCS Analysis for Metals in Soil
WA # 0-358 Public Works Site

Page 1 of 1

LCS Standard: ERA Lot No. D060-540-092908
Date Analyzed: 09/30/2008

Mercury: ERA Lot No. D060-540-092908
Date Analyzed: 09/29/2008

Analyte	Conc. Recovered mg/kg	Certified Value mg/kg	PALs mg/kg	% Recovery
Aluminum	9500	10100	5460 - 14800	94
Antimony	68.4	101	16.7 - 185	68
Arsenic	152	156	124 - 188	97
Barium	346	362	299 - 424	96
Beryllium	139	140	115 - 166	99
Cadmium	142	141	114 - 169	101
Calcium	9110	9770	7950 - 11600	93
Chromium	76.4	76.3	61.5 - 91.0	100
Cobalt	84.3	83.9	68.1 - 99.7	100
Copper	77.7	77.2	62.9 - 91.5	101
Iron	17100	17800	9000 - 26600	96
Lead	69.2	72.9	56.5 - 89.2	95
Magnesium	3940	4020	3160 - 4870	98
Manganese	478	466	379 - 552	103
Mercury	12.2	11.7	7.72 - 15.8	104
Nickel	87.3	84.3	66.3 - 102	104
Potassium	4150	5340	3930 - 6750	78
Selenium	203	198	152 - 244	103
Silver	44.9	46.9	31.1 - 62.7	96
Sodium	630	706	519 - 892	89
Thallium	190	218	177 - 260	87
Vanadium	62.0	62.7	45.9 - 79.6	99
Zinc	199	204	166 - 243	98

PAL - Performance Acceptance Limits

CHAIN OF CUSTODY RECORD

Site #: 00358

Contact Name: Scott Grossman

Contact Phone: 732-321-4200

No: 00358-09/25/08-0001

Lab: REAC

Lab Phone: 732-321-4200

Lab #	Sample #	Location	Sub Location	Analyses	Matrix	Collected	Sample Time	Numb Cont	Container	Preservative	MS/MSD
17858	00358-0001	1	Surface	VOCs	Soil	9/25/2008	10:18	1	8 oz glass	4 C	N
↓	00358-0001	1	Surface	Metals	Soil	9/25/2008	10:18	1	8 oz glass	4 C	N
↓	00358-0001	1	Surface	PCBs, Pesticides, BNA's	Soil	9/25/2008	10:18	1	8 oz glass	4 C	N
17859	00358-0002	2	Surface	VOCs	Soil	9/25/2008	10:18	1	8 oz glass	4 C	N
↓	00358-0002	2	Surface	Metals	Soil	9/25/2008	10:18	1	8 oz glass	4 C	N
↓	00358-0002	2	Surface	PCBs, Pesticides, BNA's	Soil	9/25/2008	10:18	1	8 oz glass	4 C	N
17860	00358-0003	3	Surface	VOCs	Soil	9/25/2008	10:25	1	8 oz glass	4 C	N
↓	00358-0003	3	Surface	Metals	Soil	9/25/2008	10:25	1	8 oz glass	4 C	N
↓	00358-0003	3	Surface	PCBs, Pesticides, BNA's	Soil	9/25/2008	10:25	1	8 oz glass	4 C	N
17861	00358-0004	3	Subsurface	VOC's, Metals, PCB's, BNA's, Pesticides	Soil	9/25/2008	10:33	1	8 oz glass	4 C	N
17862	00358-0005	4	Surface	VOCs	Soil	9/25/2008	10:27	1	8 oz glass	4 C	N
↓	00358-0005	4	Surface	Metals	Soil	9/25/2008	10:27	1	8 oz glass	4 C	N
↓	00358-0005	4	Surface	PCBs, Pesticides, BNA's	Soil	9/25/2008	10:27	1	8 oz glass	4 C	N
17863	00358-0006	4	Subsurface	VOC's, Metals, PCB's, BNA's, Pesticides	Soil	9/25/2008	10:27	1	8 oz glass	4 C	N
17864	00358-0007	5	Surface	VOCs	Soil	9/25/2008	10:52	1	8 oz glass	4 C	N
↓	00358-0007	5	Surface	Metals	Soil	9/25/2008	10:52	1	8 oz glass	4 C	N
↓	00358-0007	5	Surface	PCBs, Pesticides, BNA's	Soil	9/25/2008	10:52	1	8 oz glass	4 C	N
17865	00358-0008	6	Surface	VOCs	Soil	9/25/2008	09:56	1	8 oz glass	4 C	N

Sample 358-0001 was aliquoted for metals analysis, Samples 358-0004 and 358-0006

Special Instructions: were aliquoted for metals and VOC Analysis's. JM 9/29/08

Sample 00358-0002, Jar for VOC analysis received broken. Scott Grossman Received 2nd JM

Send to use another bottle for VOC Analysis's JM 9/26/08

SAMPLES TRANSFERRED FROM

CHAIN OF CUSTODY

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
All/Anal	B9/11	9/25/08	Jerry Korte	9/26/08	9:50	8 Jars / VOC Analysis's	Jerry Korte	9/26/08	A. + V. J.	9/26/08	11:15
17861 / Anal	A. + V. J.	9/29/08	Jerry Korte	9/29/08	9:25	4 Samples / Metals Analysis's	Jerry Korte	9/29/08	A. + V. J.	9/29/08	9:35
17863 / BNA, PIP Analysis's	Jerry Korte	9/27/08	Jerry Korte	9/29/08	10:00	3 Aliquots / Analysis's	Jerry Korte	9/29/08	A. + V. J.		
7 Jars / Analysis's	Jerry Korte	9/27/08	Jerry Korte	9/29/08	10:00						

CHAIN OF CUSTODY RECORD

Site #: 00358

Contact Name: Scott Grossman

Contact Phone: 732-321-4200

No: 00358-09/25/08-0001

Lab: REAC

Lab Phone: 732-321-4200

Lab #	Sample #	Location	Sub Location	Analyses	Matrix	Collected	Sample Time	Numb Cont	Container	Preservative	MS/MSD
17865	00358-0008	6	Surface	Metals	Soil	9/25/2008	09:56	1	8 oz glass	4 C	N
↓	00358-0008	6	Surface	PCBs, Pesticides, BNA's	Soil	9/25/2008	09:56	1	8 oz glass	4 C	N
17866	00358-0009	7	Surface	VOCs	Soil	9/25/2008	09:56	1	8 oz glass	4 C	N
↓	00358-0009	7	Surface	Metals	Soil	9/25/2008	09:56	1	8 oz glass	4 C	N
↓	00358-0009	7	Surface	PCBs, Pesticides, BNA's	Soil	9/25/2008	09:56	1	8 oz glass	4 C	N

Special Instructions:

SAMPLES TRANSFERRED FROM
CHAIN OF CUSTODY #

Received 2°c 3M

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
All Anal	Bg	9/25/08	James Martin	9/26/08	9:50	1 Jar / VOC Analysis	James Martin	9/26/08	A. V. J.	9/26/08	11:15
2 Samples / Metals Analysis	James Martin	9/29/08	A. V. J.	9/29/08	9:35	2 Jars / BNA, PIP Analysis	James Martin	9/29/08	A. V. J.	9/29/08	10:00